Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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MORRIS BUCK, *Managing Editor*

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Improved Equipment Can Be Made to Pay

GREATER attention to improved appearance and comfort of electric railway cars has generally been considered as a means for attracting more passengers. It usually has been assumed that a comparatively small increase in the total number of passengers carried would suffice to pay for the investment in details of equipment that may be classified as refinements.

Recently one manager, when considering new equipment, reduced this item to figures. He made his selections by considering such refinements on the basis of the additional passengers required to show a profit on the investment. His calculations show what a comparatively small increase in riding would give an attractive profit on this additional investment. For example, he found that center lighting with shades and reflectors to give improved illumination in comparison with open lamps would show a return of 25 per cent on the extra cost if the improvement attracted only one additional passenger per car per day. Likewise, the cost of upholstery on seats instead of wood slats would earn a return of 25 per cent if it attracted one additional passenger per hour. An investment in rubber tile flooring for his cars would earn 25 per cent with one additional passenger per hour. Other contemplated improvements were analyzed on the same basis.

The manager of a large interurban property found that if certain improvements contemplated in the service would attract from one to two additional passengers on each train operated the property would show a handsome profit where it was then barely holding its own.

Studying the advantages of better merchandising equipment in this way offers a means of carefully analyzing the possibilities with new equipment. It indicates the method for making equipment investments on a strictly business basis. Over and above the immediate return from increased riding, however, is the general effect of modern appearing cars on public opinion. This is an intangible effect hard to measure, but which unquestionably is of major importance to the transportation company's future relations with the community in which it operates.

Making Accounting Information a Guide to Future Progress

MORE important than merely the rôle of historian is the part the accountant has to play in modern business. Accounting records can be made more than just a history of a company's progress. This is pointed out by F. J. Gannon, assistant treasurer Northern Texas Traction Company, in an article in this issue. His point of view is particularly true of railway accounting in this period of the industry's progress, when the adoption of new methods is all important.

That branch of the accountant's work generally classified as cost accounting offers the man in charge of figures an opportunity to furnish those responsible for the physical equipment and its operation with valuable guide posts to point out the road ahead. Thus he can lead the way instead of confining his activity to mapping the route already followed. Railway cost account subdivisions should be arranged with the primary objective of guiding the operating departments in the selection of the most suitable equipment and methods. To do this intelligently the man in charge must become less exclusively an accountant and more a railway operator. He must take the initiative in studying the problems of the various departments. This should be done with a view to presenting cost information in a form best adapted to guide those spending the money for maintenance and new equipment.

The author takes a broad view of the accountant's responsibilities when he says that collection of classified information on costs should not be left to the operating departments. As a matter of fact, however, the original labor and material figures for all cost records usually are furnished by the operating departments. This is done from day to day as material and labor are charged to various accounts. Thus the co-operation of the mechanical departments is required during this first stage in building up cost records. But the accountant is best qualified to compile these figures and prepare reports in the form best adapted to the needs of the men charged with the responsibility of operating and maintaining the property. By thus fitting these reports to the needs of the operating men the accountant may become an active and helpful force in the management.

Shakeup in the Pennsylvania Commission May Create a Dangerous Situation

NEWS of the week brings the story of the dismissal by Governor Pinchot of two members of the Pennsylvania Public Service Commission. The Governor assigns no reason for this action. This is particularly unfortunate, first, because the commission is at this time in the midst of an important series of hearings on matters pertaining to the Philadelphia Rapid Transit Company, and, second, because this commission, under the able guidance of its chairman, W. D. B. Ainey, has for years held an enviable position in the field of regulatory bodies and has won phenomenal respect in the commonwealth because of its wise and impartial rulings in matters pertaining to public utility regulation.

It is history now only a few months old that the light and power interests of the state rallied to defeat some fifteen bills proposed by the Governor in support of his Giant Power scheme. This scheme was denounced by the best engineers as a most radical and unsound attempt to hamper the growth of the electrical industry. The hand of the Governor has been seen in other attempts to block the orderly progress of the power utilities of the state in their attempt to effect a coordination of generating and transmission systems in the interest of better and cheaper service to consumers.

With these recent moves in mind the question naturally arises as to the motives behind Governor Pinchot's changes. If they are for the good of the commonwealth or the people comprising it, well enough. But if they are an attempt to force the establishment of plans denounced by the best engineers and operators as unsound, then the public utility industry at large is entitled to know the truth. There is a question as to the constitutionality of his action, and the two men dismissed have refused to accept the Governor's action. The courts will have to decide the matter. If the courts sustain the dismissal all but the chairman will be appointees of Mr. Pinchot.

In all events, unless it can be shown that the recent actions of the Governor have been taken for good cause, a dangerous situation has been created in the possible formation of a political body in place of one conceived for the purpose of administering justice in that highly technical group of industries known as public utilities. It was for this purpose that the members of this commission, while appointed through gubernatorial action, assume office for terms of ten years, and if the ousting of these members is sustained it will be through a literal interpretation of law foreign to the intent of the legislation when the commission was formed.

Philadelphia's Co-ordinated Bus Service Should Prove Fruitful in Experience

USE of the bus to help serve the transportation needs of Philadelphia is the latest extensive development of its kind. It bids fair to establish a new milepost in the industry of surface transportation. The story of this interesting development, involving more than 100 miles of new routes, appears elsewhere in this issue. The Philadelphia Rapid Transit Company, sponsor for this new service, has attacked the problem along broad lines. The bus has not been confined to mere extensions of existing car routes. New territories have been boldly entered with routes leading to the center of the city, which in many cases have directly paralleled existing rail routes.

While Philadelphia has experienced a marked growth for many years, it was accelerated by the war. This is observed most readily in the extensive construction of large and modern office buildings in the downtown section, as well as the expansion of home building, particularly in the outlying districts. Except for the construction of the Frankford elevated, serving the northeast portion of the city, local transportation facilities have not been widely extended in recent years. Thus there has been a need for added service in the newer sections, now provided by bus routes.

The vehicle used is also a departure from existing standards in that the gas-electric drive is employed. The choice was made solely on the theory that it will give the passenger a more comfortable ride. Of course the elimination of clutch, gear box and differential, troublesome units in vehicles of this size, is expected to have accompanying advantages in reduced maintenance costs, the extent of which only experience can tell.

Operation of these buses in Philadelphia should prove fruitful in experience. It is to be hoped that they will prove eminently successful, not only in fulfilling the purpose for which they were designed, but as a guide in the correct solution of the urban transportation problem—satisfactory co-ordination of services and a fair return on the co-ordinated investment.

Make Your Public Relations Man a Councillor and Adviser!

FROM reports that come in to association hea quarters in a confidential way from public relatio men it would seem that altogether too many of the occupy the rôle of attorney for the defense. Many these men insist that the practice of their compani is to plan programs which they believe contrary good policy without giving them the slightest chan to express their views.

This is a terrible indictment. Yet it is the indic ment set down by Managing Director Storrs in a article contributed by him to *Aera* for August. Mor over, Mr. Storrs says that when the company polic is wrapped up and ready for delivery the public rel tions men are expected by hocus-pocus methods to ha it received with public applause.

Both Ivy Lee and Bruce Barton have complained i the past of this condition. It arises largely from mi understanding. Mr. Lee has said that men often sen for him and say: "We sent for you because they sa you can get a thing on the first page of the newspapers. His reply has always been: "I cannot do anything c the kind. If you want a subject to get on the first pag of the newspapers you must have the news in you statement sufficient to warrant it getting on th first page."

In all public relations work it is essential to keep few fundamental facts in mind: "News is that whic the people are willing to pay to have brought to thei attention. Advertising is that for which the advertise himself must pay to get to the people's attention." No only that, but it is essential to talk to people in lan guage they will understand. Advertising is a day-by day and hour-by-hour business. Public relations me know this. Many managements do not know it. The look upon the matter as a specific process rather tha as a continuing one.

Mr. Storrs says the public relations man should b of a caliber sufficient to warrant the rank and title o vice-president—and he should have both. As he point out, a public relations man is not a press agent. Hi job is bigger than that. There is no question abou the soundness of this. Moreover, Mr. Storrs says th electric railway that has not yet made use of the expe rience of a capable advertising and publicity man ha better look around and find one. This advice, too, i sound.

Mr. Storrs, Mr. Lee and Mr. Barton have all spoke from a richness of experience, Mr. Storrs from inside the industry and the others from outside. In Mr Storrs' opinion nothing is more important than a public relations policy of the proper kind. If the management has previously taken Mr. Storrs' advice and put its house in order, it may then meet the demagogues' every false statement with facts. It is not enough to "assume a virtue if you have it not." That will not do. As Mr. Lee has so aptly said: "No one should attempt to adopt publicity or make use of it for his own benefit unless he is prepared to take all the consequences." Public relations work must be done well or it had better be left alone. Doing it well is presaged upon the selection of the right man, upon a correct attitude on the part of the corporation toward the matter as defined by Mr. Storrs and upon the man in charge of the work being made an adviser and councillor of the management.

Sample Articulated Car Built for Chicago Surface Lines

New Unit Is Designed to Handle Heavy Industrial Peak Loads on Line Serving Western Electric Plant—It Was Constructed at West Shops from Two Old Cars that Were Not Adapted to This Service—Steel Connecting Vestibule and Automatic Exits Are Used

AN EXPERIMENTAL articulated car has just been completed at the West Shops of the Chicago Surface Lines and placed in service to determine its operating possibilities. This equipment was designed under the direction of H. H. Adams, superintendent of shops and equipment, and is to be used for handling the extremely heavy peak industrial loads originating at the Hawthorne Works of the Western Electric Company.

Several of the lines in Chicago are subjected to similar heavy industrial peaks in the morning and evening rush hours. Some of these lines, being far removed from the central business district, and not running into that district, have a comparatively light load during the off-peak hours. Consequently a large amount of equipment is required for only a comparatively short time during the day and is idle during the remaining hours.

Two Old Bodies Were Used for the Construction of This Sample Articulated Car by the Chicago Surface Lines

For a number of years the service on the Cicero Avenue line, running north and south approximately 6 miles west of State Street and carrying the Western Electric industrial load to transfer points on east and west lines from 1 to 7 miles north of the Hawthorne Works at 26th Street, has been operated with motor cars and trailers. Special men to facilitate loading have been assigned to street duty in front of the Western Electric plant.

Design of this sample articulated car is based on the principle of utilizing older type cars for this industrial peak service. By converting such vehicles so that they are suitable for handling these heavy peak loads this old and heavy rolling stock is operated a minimum number of hours per day, thus reserving newer and more efficient equipment for lines where the load factor is more uniform. The sample articulated car was constructed to find out the cost of making the necessary changes in the old cars, so that it could be determined whether or not they could be converted to articulated service without an unduly heavy expenditure for rebuilding. Construction of future units will depend upon the final analysis of these construction costs.

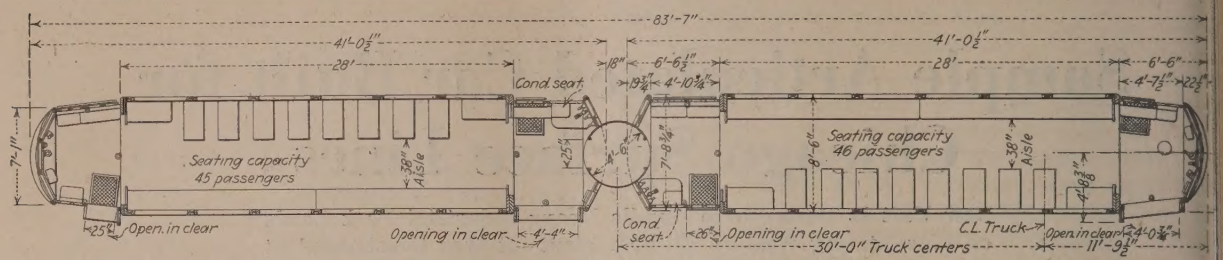
The completed articulated car is 83 ft. 7 in. long over the bumpers. It is composed of two bodies, each 41 ft. ½ in. long. A total seating capacity for 91 passengers is obtained, 46 in the front body and 45 in the rear. Each of the original cars was equipped with four G.E.-70 motors, K-28-B double-end control and weighed approximately 44,000 lb. complete.

In the articulated construction two of the St. Louis cast steel side-frame trucks, four motors and the controllers on two adjacent platforms are eliminated. The weight thus saved is partially offset by the addition of a steel frame to carry the adjacent ends of the two bodies on a common truck and the necessary reinforcement of the old wood frame required by an increase in the truck centers from 17 ft. 5 in. to 30 ft. A Brill 67-F trailer truck with 22-in. diameter wheels is used for the common truck at the center. Special springs were installed in all three trucks to carry the extra load imposed. The resulting weight of the complete unit is 72,000 lb.

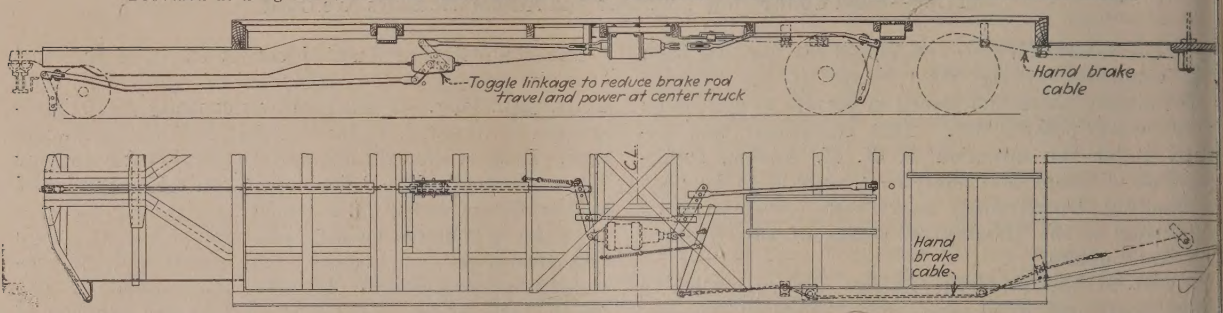
Between the two bodies a Cincinnati Car Company type steel vestibule drum of similar design to that developed for the sample articulated train built for the Department of Street Railways of Detroit and described in the March 8, 1924, issue of ELECTRIC RAILWAY JOURNAL is used. To accommodate this drum and also to allow the installation of pneumatic doors an entirely new vestibule was built on one end of each body, corresponding to the center section of the car. A Cincinnati type of double ball and socket center bearing, which is also similar to the Detroit design, is used for carrying the adjacent ends of the two car bodies on the common truck at the center.

STEEL FRAME UNDER WOOD BODIES

Details of the steel frame added to reinforce the old wood underframe and carry the overhanging ends of the two bodies are shown in an accompanying drawing. A channel member of 10-in., 15.3-lb. material and 19 ft. 6¼ in. long is carried under the old body sills and

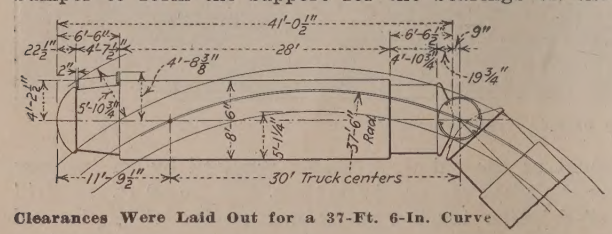


The Complete Unit Is 83 Ft. 7 In. Long and Has a Seating Capacity for 91 Passengers. Automatic Exit Doors Are Provided at Diagonal Corners of Each Section. The Conductor's Position Is at the Front of the Rear Section



An Ingenious Toggle Arrangement Is Used in the Foundation Brake Rigging to Get Proper Distribution of Pressure and Braking Power Between the End and Center Trucks

bolsters to a new channel cross sill that ties the new framing members together across the car. From the bolsters, toward the end of the car, these channel pieces are reinforced with angles at the top and bottom to carry the vertical stresses imposed. From the end sill line the two side channels are drawn sharply together to a steel cross member tied across the platform midway between the end sill and the bumper. The structural frame is then continued out beyond the bumper to form the support for the bearings on the

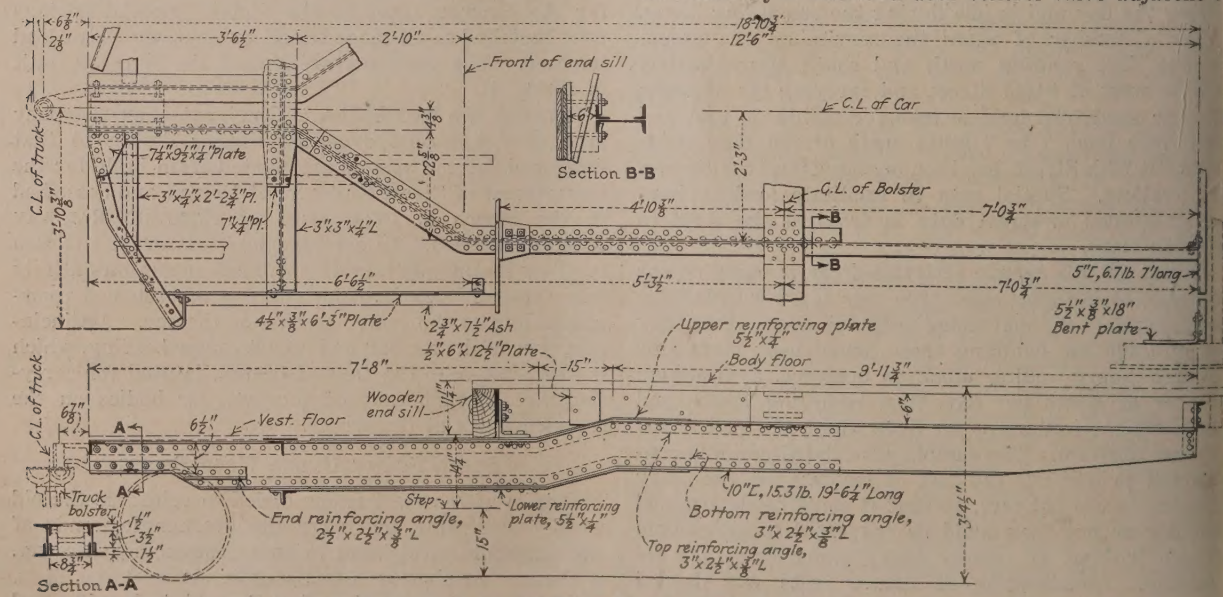


Clearances Were Laid Out for a 37-Ft. 6-In. Curve

common truck. This is shown in the frame drawing

To obtain maximum aisle width, so as to facilitat the circulation of passengers through the train, a com bination of cross and longitudinal seats is used. Th car is arranged for double-end operation.

Automatic exit doors are installed at diagonal corner of each section so that for either direction of operatio with the conductor stationed at the front end of th rear section, passengers may be permitted to aligh through these doors. The car is equipped with th M-28 brake valve of the standard safety car equipmen and the front doors of the leading section are controlle through this valve. The automatic exit door at th rear end of the front section may be released by th conductor stationed on the front platform of the rea section through a control cord connecting with th valve on the pneumatic engine and passing between th two sections. The front doors on the rear section ar controlled by a standard door control valve adjacent t



A Steel Subframe Was Installed to Reinforce the Old Wood Framing. This Carries Each of the Bodies on the Center Truck

e conductor's position. At the rear end of the second ction the automatic exit door is released by a valve so situated at the conductor's position on the front atform. On the outside, near the automatic exit ors, street fare collector's valves are located so that man on the street may take control of these doors for pid loading.

Under normal operation entrance will be near the nter of the car through the front doors of the rear ction. Passengers may alight through the automatic xit at the rear end of either the front or the rear ction, and through the front door of the leading ction, which is under the control of the motorman.

When street fare collectors are available, the car may e rapidly loaded through any of the four doors and assengers may then be permitted to alight under the nditions described above. The car may also be oper-ted pre-payment through the front door of the rear ction and pay-pass for passengers entering the front oor of the leading section. Under this condition, the readle on the rear end of the leading section would emain closed and passengers boarding the front sec-ion would be required to alight either by the front or ear doors of the second section after paying their fares.

One National A-4, 16-cu.ft. air compressor supplies he compressed air for the brakes. Two 16-in.x60-in. eservoirs are provided. The compressor is mounted nder one section, while the controller resistance grids nd line breaker are mounted under the other. Two rake cylinders are used, one under each section. Each f these cylinders supplies braking power for one end ruck and for the adjacent pair of wheels of the center, r pivot truck. The two brake riggings equalize hemselves through the tie rod across the bottoms of he brake levers on the center truck.

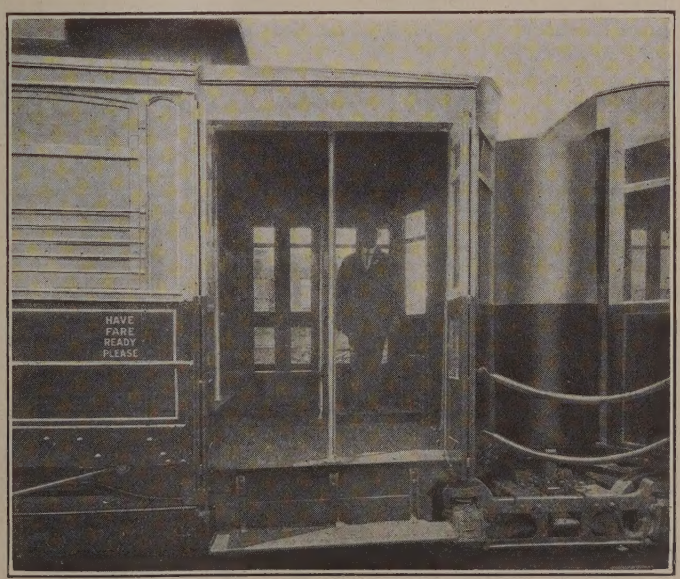
Because of the load distribution between the end and enter trucks the braking power required for the four vheels of the end trucks is 64 per cent greater than hat required for each pair of two wheels on the center ruck. At the same time the travel of the pull rod to he center truck must be reduced to approximately half f that for the end trucks, because the power from each ylinder is distributed to two pairs of wheels on the end

The Conductor Is Stationed at the Front End of the Rear Section, Where He Can See the Exit Door at the Rear End of the Front Section

trucks and only one pair on the center truck. Since both a reduction in travel of the pull rod to the center truck and of the power transmitted to that point in comparison with that to the end truck was required from a common cylinder, a difficult brake rigging problem was presented. Simple foundation brake levers could not be utilized for this purpose, since a reduction in power through a lever results in an increase in travel, and vice versa. A special toggle arrangement was therefore designed for transmitting the braking power from each cylinder to the center truck. In this the travel is reduced through the levers, while the power is reduced at the same time by mounting the links of the toggle at an acute angle to the line of transmittal of the braking force. The general design of this brake rigging arrangement is shown in an accompanying illustration.

In addition to the changed seating arrangement on the interior of the car to provide increased aisle width, the end bulkheads in the old bodies were removed, to

A Combination of Cross and Longitudinal Seats Gives a Wide Aisle to Facilitate the Circulation of Passengers



Under Normal Operation, Entrance Is at the Front End of the Rear Section

increase the space for free circulation of passengers, and at the same time improve the appearance of the interior. Due to this removal of bulkheads, two new 800-watt heaters were installed in each end ventibule and a 1,200-watt heater was added in each center vestibule.

Careful study was given to the exterior painting scheme, so as to improve the appearance of the articulated unit. Standard Chicago Surface Lines colors of red and cream are used, but a change from customary painting practice was made by carrying the red along the entire car in a continuous band, including the doors and the vestibule drum. All parts of the bodies and doors above this dividing line, with the exception of the roof, are painted cream. This unbroken band of color below the line corresponding to the belt rail tends to give the unit a stream-line appearance and helps to offset the structural breaks in stream lines caused by the use of old bodies for building the new unit.

Australian Electric Railway Mileage Increasing

GOVERNMENT operation appears to be growing in the electric railway field in Australia. The Melbourne and suburban systems were transferred from municipal to federal control in 1920, and early in 1923 the Queensland government purchased the electric railroads operating in the city and suburbs of Brisbane.

The tramways in New South Wales are almost entirely in government hands and are operated by the Railway Commissioners. Sydney, the capital of the state, has seven systems, five electric and two steam. A capital expenditure of £9,975,031 was recorded up to and including 1923, the average cost per mile of track being £22,763 for permanent way and £21,590 for other charges, making a total of £44,353 per mile.

The Melbourne electric tramways showed a net profit of £78,191 in 1923. A comprehensive construction plan was recently under consideration for the extension of existing lines, the linking of others and the construction of new lines.

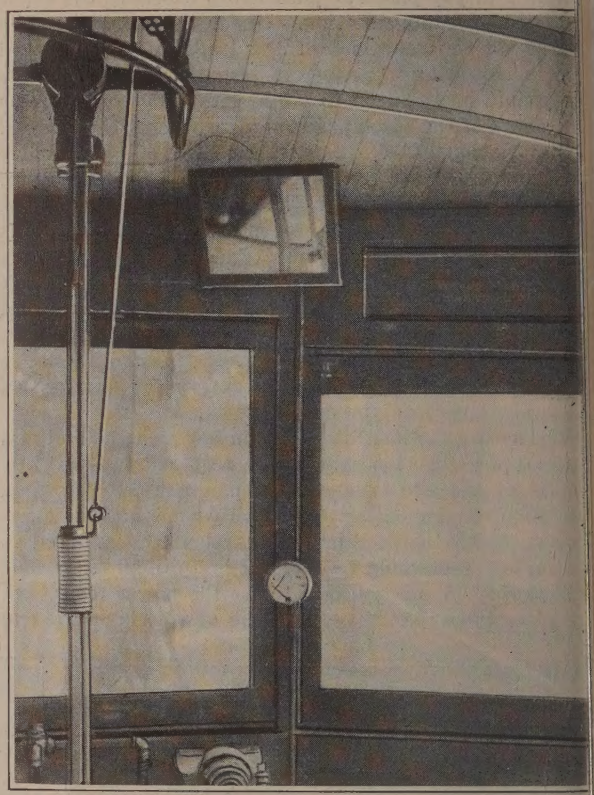
Electric traction was adopted in the streets of Adelaide in 1909. In the state of South Australia the government operates about 20 miles of horse tram in conjunction with the railroads. The Perth electric tramways were taken over by the government in 1913. In Hobart and Launceston, Tasmania, the tramway systems are controlled by the municipalities.

The variety of railroad gages in Australia has led to much expense and lack of co-ordination. Tramway gages vary from 5 ft. 3 in. down to 2 ft. The majority of the systems, however, use the standard gage.

Energy used for traction purposes was 146,387,481 kw.-hr. Passengers carried totaled 580,472,975. Employees numbered 15,101; and cars, motors and trailers 2,487. Gross revenue aggregated ½5,908,303 and working expenses £4,675,289. The ratio of working expenses to gross revenue for all electric traction passenger systems in Australia in 1923 was 79.13 per cent. The average of the five years 1919-23, inclusive, was 79.24 per cent, reaching a maximum of 80.78 per cent in 1921 and a minimum of 76.40 per cent in 1919. The mileage of electric railways has steadily increased from 430.87 in 1918-19 to 460.18 in 1922-23.

Mirror Used on One-Man Cars to Detect Smoking

ALTHOUGH not primarily installed for that purpose, mirrors which have been placed just above the right-hand front vestibule window posts on the cars of the New Haven & Shore Line Railway have proved helpful to detect smoking by passengers. These cars are of the one-man type and the management felt that it would be desirable to provide some means whereby that the operator could know what was going on in the



An Ordinary Wood-Frame Mirror Is Installed on the One-Man Cars of the Shore Line Railway to Give the Operator a View of the Car Interior

back of the car. For this purpose small wood-frame mirrors were installed, as shown in the accompanying illustration. With this arrangement permitting the operator to observe the entire car there has been practically no trouble from passengers violating the smoking rule.

OPERATING STATISTICS OF AUSTRALIAN STREET RAILWAYS, 1923

	Mileage	Gross	Working Expenses	Passengers	Cars	Employees	Kilowatt-Hours
Sydney	224.90	£3,598,114	£3,092,306	331,002,000	....	9897	.....
Melbourne	71.51	661,486	503,166	70,811,393	....	....	.....
State of Victoria	106.70	816,984	624,852	86,027,005	310	....	19,114,00
*Brisbane	42.60	575,088	446,472	71,529,033	181	1,179	12,143,19
Adelaide	71.71	612,839	430,474	59,648,362	218	....	13,700,38
Perth	30.38	272,689	213,928	25,993,983	103	....	7,285,20
West Australia	53.81	350,412	281,566	33,838,351	166	....	9,326,90
Tasmania	26.28	177,057	132,011	16,499,999	74	438	3,447,31

*Statistics for 1922. Later records not available.

Electric Train Leaving the Oakland Pier Terminal of the Southern Pacific Railroad

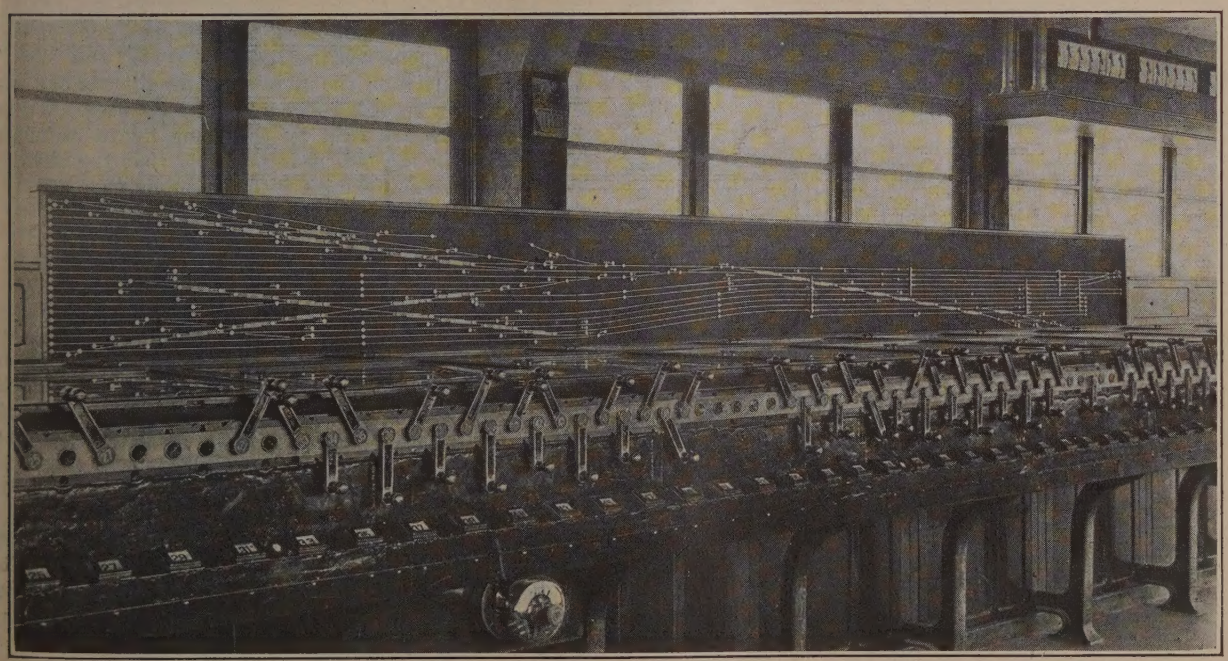
Regulating 2,200 Train Movements a Day

Heavy Traffic at the Oakland Pier of the Southern Pacific Railroad Is Controlled from One Signal Tower—Electric Railway and Ferry Operations Are Closely Synchronized

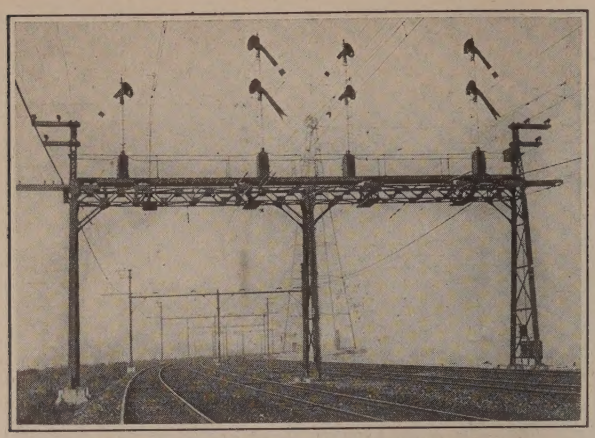
LARGE numbers of workers in San Francisco live across the bay, and their daily coming and going creates a traffic of nearly 20,000,000 passengers a year on the ferries and trains of the Southern Pacific Railroad. The entire traffic passes through the Oakland Pier, on the east side of San Francisco Bay. This is the terminus of transcontinental trains as well as the local steam and electric service. Control of all railroad operation is co-ordinated at one tower, which handles as many as 2,200 train movements per day. Close synchronism of electric railway and ferry operation is essential.

Alongside the slips where the ferries are docked are twenty parallel tracks, which join outside the train-sheds to form ten. Of the latter two are used for switching and emergency work, two for steam trains to points beyond Port Costa and Vallejo Junction. Two tracks are used for service along the southeastern shore of the bay and four main electric tracks serve Berkeley, Oakland, East Oakland and Alameda.

Normal operation necessitates that the total time used for switching shall be only eighteen minutes during each hour, the remainder of the time being taken up by operation of regular service. For example, from the hour until ten minutes past the hour there is a continuous movement of passenger trains into and out of the pier shed. Service is then interrupted for a



Operating Model of the Yard Layout and Levers Which Control Switches and Signals



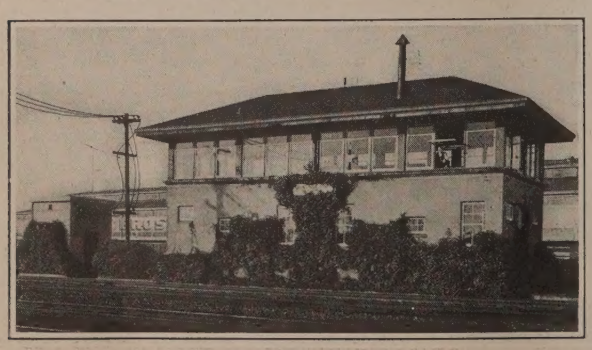
Typical Signal Bridge on the Electrified Lines of the Southern Pacific Railroad

few minutes and whatever switching is necessary is done. The tracks are then opened again for regular operation. In the maximum hour there are 56 train movements in the same direction, 50 of which are on the electrified line.

Ferries bound for San Francisco leave a few minutes after the arrival of the train. Similarly the Oakland, Berkeley and eastbound continental and local trains depart immediately after the arrival of the ferry from San Francisco. Despite the number of people carried on the boats, which is sometimes as many as 2,000, the "turn-around" time between docking at Oakland and departure for San Francisco is only ten minutes.

The pulse of the system is the Oakland Pier tower. Six operators working in three eight-hour shifts control the traffic. C. W. Perkins, supervising towerman and examiner western division of the Southern Pacific Railroad, assists when traffic is particularly heavy. In the tower is a model of the pier yard, about 33 ft. long and 6 ft. wide, complete as to tracks, signals and switches. It operates automatically in conjunction with the operation of the actual switches and signals. Control levers are arranged at the edge of the model, 65 connecting with the switches and 54 with the signals. Below these levers are indicator lights, each with a number corresponding to the number of a particular switch. Appearance of a light indicates that the switch is clear of traffic. The actual work of closing and opening the switches and signals is done by compressed air, application or release of which is controlled by electromagnets operated from the tower.

Above the control board, hanging from the ceiling, is an indicator system, with five lights. Of the ten tracks already mentioned, five are for inbound traffic and five for outbound. As soon as a train comes within the area controlled from the tower a red signal light is shown. The towerman then watches for the appearance of the train, identifies it by its route disk or light, sets the proper switches and follows its progress on the indicator board, where every movement through the yard is shown by lights.



Tower from Which 2,200 Train Movements per Day Are Controlled

Switches and signals are completely interlocked. A switch cannot be opened before the signal is raised, nor can it be reversed unless a derail is opened. The towerman who wishes to set a cross-over switch first raises the signal against east and west traffic and then opens the derail between the switch and signal. The crossover switch can then be thrown. A switching movement from one track to another involves the raising of a signal against other traffic and the setting of an automatic time release that locks the switch in position for one minute. Movement of the switch while the train is on or near it is thus prevented.

Riders Vote on Car Color

DESIRING to brighten up the appearance of its equipment, the Market Street Railway of San Francisco recently tried an experiment to determine the preference of the public. A car of standard type was painted in blue and gold (really an orange-yellow) for comparison with cars of the standard dark green color. The new colors are considered typically California, being those of the state university. Passengers on the new car were handed ballots, printed in gold on blue stock, bearing the words "Do you like this

NO	Do You Like This California BLUE AND GOLD CAR? Please tear off and drop in ballot box the end representing your opinion.	YES

Patrons of the Market Street Railway Recently Voted on Changing the Color of the Street Cars, Ballots of This Form Being Used

California blue and gold car?" At the two ends of the ballot were coupons bearing the words "No" and "Yes." A large majority of the public favors the change, as one day's vote recorded 846 ayes and 36 noes. While the new colors are said by the company to be more expensive than the old, it is probable that the change will be made in conformity with the public vote.

Electric Railways Influence the Clothing Business

BUSINESS follows the street car lines, according to an investigation made by the National Association of Retail Clothiers. It was found that 50 stores located at transfer points did an annual gross business of $4,221 per hundred feet of floor space. Stores on street car lines but not at transfer points, numbering 213, averaged $3,375, and 132 stores on the route of an interurban line averaged $3,244 annually.

On the other hand, 165 stores not located on street or interurban railways averaged only $2,421 per 100 ft. of floor space. This is 42.8 per cent less than the average business done by the 50 stores located at transfer points and 26.8 per cent less than stores on city or interurban lines.

Interior View of One Wing of the Cumberland Garage Used for Storage of Both Single and Double Deck Buses Capacity of This Garage Is 175 Buses, Using Both Wings

Philadelphia Co-ordinates Bus and Rail

Extensive Adoption of Gas-Electric Principle to Both Double and Single Deck Type—Routes Are Feeders as Well as Supplemental to Present Rail Lines —Suitable Garage Facilities Provided

MORE THAN 10,000 bus-miles per day are being operated by the Philadelphia Rural Transit Company, a subsidiary of the Philadelphia Rapid Transit Company. This is the latest extensive co-ordination of electric car and bus transportation. All of the 202 buses on order, which are now being delivered, are of the gas-electric type. Practically all of the 125 double-deck and a few of the 77 single-deck type have been delivered. In addition there are thirteen snowplows and service wagons on order that will serve to maintain the continuity of operation.

The buses are operated over seven routes, practically all within the Philadelphia corporate limits. In the selection of routes an attempt was made to accomplish three results: First, to supply service to sections of the city recently built up and not now receiving adequate street car service; second, to provide a crosstown service between outlying communities not readily accessible to each other, and, third, to provide an additional choice of service on heavy arterial routes. The service is of a superior character and a seat is provided for every fare.

Those routes falling in the third group above mentioned, such as Route D on Walnut Street, are of particular interest, because they parallel existing transportation service. This latter route taps the congested residential district of West Philadelphia, which is now served by several surface car lines, the Market Street elevated-subway and now the bus route. A similar choice of service will be possible with Route C on Broad Street upon the completion of the Broad Street subway, now under construction.

The plan of bus operation in effect today, covering as it does some 80 route-miles, is but little more than half of the entire program proposed last year by the Philadelphia Rapid Transit Company. Seven routes were operating Aug. 1, and four additional routes have been authorized. Of these, Routes G and H will commence in August and C-1 and F in the fall. These four lines will add 24 route-miles, making a total of

TABLE I—BUS ROUTE STATISTICS, PHILADELPHIA RURAL TRANSIT COMPANY

Route	Date Operation Started	Type of Bus	Round Trip Mileage	Schedule Speed, Excluding Layover M.P.H.	Headway in Minutes Regular	Headway in Minutes Peak	No. of Buses Regular	No. of Buses Peak (Additional)	Daily Bus Mileage Regular	Daily Bus Mileage Peak (Additional)	Total Daily Bus Mileage by Routes	Av. Miles per Bus per Day
A	July 5, 1925	Double-deck	22.30	11.85	10	8	12	3	2499.9	*291.8	*2791.7	186.1
B_1	May 18, 1925	Single-deck	48.90	18.30	90	..	2	..	717.0	.....	717.0	358.5
B_2	May 19, 1925	Single-deck	24.10	17.60	90	..	1	..	329.5	.....	329.5	329.5
C	May 28, to	Double-deck	27.30	11.70	10	8	15	4	3077.1	416.5	4235.2	132.5
Short Line	June 14, 1925	Double-deck	18.50	11.10	...	8	..	13	.....	741.6		
D	June 25, 1925	Double-deck	10.00	10.71	6¾	3¾	9	8	1633.3	559.6	2192.9	129.0
E	July 7, 1925	Single-deck	5.90	13.10	15	..	2	..	413.1	.....	413.1	206.5
F†	May 3, 1925	Single-deck	6.35	14.11	30	..	1	..	220.8	.....	220.8	220.8
Totals			163.35				42	28	8890.7	2009.5	10900.2	155.7

*Does not include 210.1 bus-miles for morning and evening trippers to Sears, Roebuck plant.
†To be discontinued.
B_1—Morrisville and Trenton branch of route B operation to Trenton began Aug. 28, 1925.
B_2—Somerton branch of route B.

104 miles of bus routes, practically all of which will have been started during the present summer.

The map shows the entire bus program, the route designation being lettered, in distinction to the route numbers of street car lines in Philadelphia. Important but temporary diversions are necessary, such as Route C from Broad Street between the City Hall and Courtland Street because of the construction of the subway. Also, Route E is diverted as shown because of the construction of the Walnut Lane bridge. General statistics pertaining to the bus routes in actual operation are shown in Table I. Data on the proposed bus routes are given in Table II.

Map of Philadelphia Showing the Present and Proposed Bus Routes of the Philadelphia Rural Transit Company

Prior to this extensive bus development the Philadelphia Rapid Transit Company operated a line of buses on Roosevelt Boulevard between Broad Street and the northeast city line. From this operation was obtained much of the experience that formed the basis of the present program. Besides the decision to enter upon this extensive program the most important result of this experimental period was the development of the gas-electric vehicle. More than a year ago one of the mechanically driven Roosevelt Boulevard buses was reconstructed by directly connecting a generator to the gas engine shaft. A new rear end was built and two electric motors were mounted and geared to the short axles connected to each rear wheel. In this way the

clutch, gear box, propeller shaft and differential were eliminated and replaced by the generator electrically connected to the two motors, which in turn were geared by underslung worm drives to the axles.

This bus was then put in regular service on Roosevelt Boulevard and was found to maintain its schedule in conjunction with the mechanically driven buses with greater ease, because of the faster acceleration possible with the gas-electric equipment. It was also observed that the riding characteristics were greatly improved on account of the very smooth and even acceleration and the freedom from noise and jolts that accompany the gear-shift vehicle.

As mentioned in a previous article in this paper it was found that the engine of the gas-electric bus made approximately 20 per cent fewer revolutions in a day's run than the mechanical-drive buses performing exactly similar service. This resulted in an economy of gas that more than offset the lower efficiency of electrical transmission. By the use of the electric drive the engine can be made to operate at its most efficient speed a greater part of the time and is only operating above idling speed when tractive effort is required. As the bus is running free on level stretches, the engine speed is lower than would be possible if the engine was direct connected to the wheels by a mechanical drive,

The Double-Deck Gas-Electric Bus, One of 125 Recently Delivered to the Philadelphia Rural Transit Company. The Lower Body Is Pea Green and the Superstructure Cream

and when coasting or approaching a stop the engine speed drops instantly to idling speed as soon as the operator removes his foot from the accelerator. This means that fewer unnecessary charges of gas are drawn into the cylinders.

Based on the data obtained in these extensive tests the present vehicles of both the double and single deck type were developed. The new buses are manufactured by the Yellow Coach Company. Six-cylinder engines are used in connection with electrical equipment furnished by the General Electric Company. The generators are separately excited from an overhung exciter direct connected to the engine crankshaft. To insure rapid excitation the exciter has an auxiliary field winding known as a teaser field connected to the lighting battery. This teaser field requires very little energy, but is successful in eliminating the time lag of excitation as the engine is speeded up.

A four-point switch at the operator's left provides, in turn, parallel forward, off, series reverse, and emergency braking connections for the motors. In practice the switch is not used except to reverse the bus or in emergency to connect the motors to "buck." In normal service operation the bus is stopped by releasing pressure on the foot accelerator and applying the foot brake. The small current flowing at idling speed is negligible. To start the vehicle the operator steps on

TABLE II—PROPOSED BUS ROUTES, PHILADELPHIA RAPID TRANSIT COMPANY

Route	Type of Bus	Round Trip Miles	Remarks
C-1	Double-deck	21.78	Will start this year
F	Double-deck	7.24	Will start this year
G	Single-deck	9.74	Will start this year
H	Single-deck	9.11	Will start this year
J	Single-deck	6.71	Proposed
K	Single-deck	17.71	Proposed
L	Single-deck	8.82	Proposed
M	Single-deck	4.64	Proposed
N-1	Single-deck	9.09	Proposed
N-2	Single-deck	8.98	Proposed
O	Single-deck	8.51	Proposed
P	Single-deck	4.30	Proposed
Q	Single-deck	9.78	Proposed
R	Single-deck	3.83	Proposed
Total round trip mileage		130.24	
Present route to be discontinued		5.87	
Total round trip mileage not yet started		124.37	

TABLE III—GENERAL DIMENSIONS OF GAS-ELECTRIC BUSES PHILADELPHIA RURAL TRANSIT COMPANY

	Double Deck	Single Deck
Over-all height, loaded	12 ft. 4 in.	8 ft. 7 1/16 in.
Over-all height, light	12 ft. 6 1/2 in.	8 ft. 11 3/16 in.
Over-all length	30 ft. 0 in.	29 ft. 3 in.
Over-all width	7 ft. 10 1/2 in.	7 ft. 11 1/2 in.
Headroom	5 ft. 10 in.	6 ft. 4 in.
Floor height, loaded	1 ft. 11 3/4 in.	2 ft. 1 3/4 in.
Height of step to ground, loaded	1 ft. 2 in.	1 ft. 4 3/16 in.
Seating capacity	67	33

Busmen's Room and Cashier's Department, Cumberland Garage. In the Same Building Are the Inspection and Repair Shop and Storeroom

Exterior View of Cumberland Garage, Remodeled from an Old Carhouse

the accelerator and the engine immediately responds by rising to about normal speed. As the excitation picks up, the bus accelerates in a smooth, uninterrupted manner, free from surges and noise of gear shifting.

Experience of the first few months of operation indicates that this new equipment is entirely satisfactory. A few minor troubles developed, as might be expected, but nothing that has prevented the orderly operation of each of the routes from the beginning.

The Philadelphia Rapid Transit Company has turned over to the bus company three of its old carhouses for bus storage and garage purposes. These are known as the Cumberland, Haverford and Fairmount garages. The Cumberland garage, at Cumberland and Fifteenth Streets, has a capacity of 175 buses. The remodeling work on this carhouse has recently been completed and is illustrated in accompanying illustrations. The Haverford garage, with a capacity of 125 vehicles, is located at Haverford and Holly Streets. It can be expanded when necessary to increase its facilities. The Fairmount garage, at Fairmount Avenue and 24th Street, has been used for some time for bus equipment and has a capacity of 30 buses.

One interesting feature of inspection is pointed out by J. A. Queeney, vice-president Mitten Management, Inc., operators of both the rail and bus companies. This is that the entire power plant of the gas-electric bus can be checked up very readily by connecting the generator to a water rheostat and having the engine running with the accelerator wide open, the output in amperes and the corresponding engine speed can be compared with the known results of an engine in perfect condition. A leaky valve or a poor spark plug or any of a number of such troubles will instantly indicate itself by either a lower ampere output or a lower engine speed than normal.

Bus drivers and conductors are drawn from the ranks of trainmen who apply for such transfer and are subject to acceptance based upon their fitness for this work. The bus drivers are paid three cents an hour more than their regular rate on the cars and conductors one cent more an hour. At the present writing the list of available men who requested transfer is exhausted and many new men are now being broken in.

The fare charged is 10 cents, as against the 8-cent car fare with two tokens for 15 cents. Transfer is made from bus to car upon the further payment of 3 cents for an exchange ticket.

The operating period has been too short to collect reliable operating statistics. The service has been increased and extended every few days as buses are delivered. Many of the routes tap new territory where it takes time to change the riding habits and the whole situation is somewhat in a state of flux. The buses are new and the expense of starting operation with a new organization and new equipment on such an extensive scale is naturally far different from that which may be expected after the organization functions smoothly and inspections and maintenance becomes stabilized.

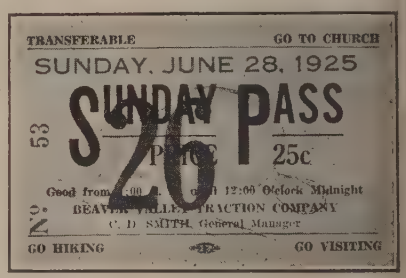
The design of the buses and selection of routes have been under the direct supervision of Mr. Queeney. Engineers of the General Electric Company have cooperated in the development and application of gas-electric principle to the chassis and body designed and manufactured by the Yellow Coach Company.

Operations of the Philadelphia Rural Transit Company are now under the supervision of R. H. Horton, president.

Revenue and Riding Increased by Sunday Pass

Recent Experiment Made by the Beaver Valley Traction Company Has Proved Entirely Successful —Sale of Weekly Passes Also Shows an Increase Over Figures of Last Year

TO GIVE the public a lower rate of fare for service that would otherwise be wasted, the Beaver Valley Traction Company, New Brighton, Pa., inaugurated on Sunday, April 12, 1925, a Sunday unlimited ride transferable pass. Since that time the pass-using routes have shown an increase of somewhat more than 13 per cent in revenue and 45 per cent in passengers carried. Although there are eight 5-cent zones on this property, most of the riding is ordinarily within three zones. The pass is sold for 25 cents and its appeal it chiefly to riders who have time and inclination for multi-zone riding. Thus it brings out an entirely new class of traffic, persons who have no reason to ride regularly on weekdays but who can be stimulated to travel frequently on Sundays and holidays. The sale of the Sunday pass has not affected the number of people using the weekly pass, which is now 22 per cent greater than it was a year ago.



Type of Sunday Pass Successfully Introduced on the Beaver Valley Lines. Note the Beaver, Which Is the Characteristic Symbol of the Company

On the first Sunday the sale of passes was 1,341. It has been increasing ever since, and on days when the weather was fine the sale has exceeded 2,000. On several Sundays the total revenue has been the best of the week, a condition that has not heretofore been true since automobile competition began. A tabulation made by Clinton D. Smith, general manager, shows that the revenue for Sundays from May 3 to June 21, 1925, was 9.27 per cent ahead of the corresponding Sundays of 1924. The showing is even better if allowance is made for two routes on which no Sunday pass rate is yet in effect. On the pass-using routes the actual increase in revenue for this period was $1,269, or 13.3 per cent. On a single Sunday, June 21, the pass-using routes showed 26 per cent more revenue than the corresponding Sunday a year ago. The increase in the number of passengers carried on Sundays is about 45 per cent.

As many people also use weekday passes on Sundays, the car operators now hardly know what a change-making transaction is. The use of fare receipts has been abolished, as told in ELECTRIC RAILWAY JOURNAL for Aug. 9, 1924, and the work of the operator thus reduced to a minimum. Apparently there has been almost no attempt to take improper advantage of this method.

One of the byproducts of the Sunday pass is that it advertises the company's weekday facilities to many persons who have not heretofore realized their existence. This is thought to be even more effective than newspaper advertising, although the company intends to continue this and other methods of publicity.

The Accountant Should Point the Way

He Is in a Position to Furnish Those in Charge of the Physical Equipment with Valuable Information to Guide Future Decisions

BY F. J. GANNON
Assistant Treasurer Northern Texas Traction Company, Fort Worth, Tex.

FOR years it has been generally considered that accountants are the historians of business and that accounting records are the history of a company's progress. This is perfectly true. But simply making a history of the company activities is of little value unless the work is done in such a manner as to produce information that will be a guide for future progress. The good accountant so organizes his records, and presents his reports, as to make them a valuable guide to the operating departments in reaching a correct determination of the problems confronting them.

The standard classification of expense accounts in use by most electric railways follows the Interstate Classification. This is good so far as it goes. But it is very evident that the framers of the classification must have been dominated by those who were most interested in the classification of track and roadway expenses, since their deliberations resulted in segregating this class of expenses into some sixteen accounts while the cars and car equipment expenses were confined to two accounts.

STANDARD ACCOUNTS SUBDIVIDED

Some four years ago the Northern Texas Traction Company officials came to the conclusion that it was desirable to know the details of the expenditures that were being made in the car repair shops for the maintenance of passenger cars and electric equipment of cars. To secure this information operating expense account 30, maintenance of passenger and combination cars; account 31, maintenance of freight, express and mail cars, and account 32, maintenance of service equipment, were divided into several sub-accounts as follows:

30.1—Maintenance of car bodies.
30.2—Painting car bodies.
30.3—Maintenance of trucks.
30.4—Maintenance of wheels.
30.5—Maintenance of air compressors.
30.6—Maintenance of other air brake equipment.

Operating expense account 33, maintenance of electric equipment of cars, was also subdivided into the following accounts:

33.1—Maintenance of motors.
33.2—Maintenance of control apparatus.
33.3—Maintenance of collecting apparatus.
33.4—Maintenance of power saving devices.
33.5—Maintenance of other electric equipment of cars.

From month to month and from year to year since that time the accounting department has reported these subdivided costs to the operating department and the results have been beneficial to the company's operation. For instance, painting has proved a comparatively inexpensive part of the cost of maintaining cars. Consequently when the cost was thus made apparent, it was found that the merchandising value of frequent painting could be obtained at a cost which was only a very small part of total maintenance expense.

In addition to the desire to know the comparative costs of various classes of work being done in the repair shops, the management felt that more information was desirable as between the different classes of equipment in use by the company. With interurban cars, heavy double-truck cars, double-truck Birney cars, standard Birney cars and rebuilt single-truck cars all in use, it did not mean much to know that it cost so much to paint a car unless one knew what kind of a car was under discussion. This led to a further subdivision of the subsidiary accounts into the several classes of equipment as follows:

1—Double-truck Birney cars
2—Single-truck Birney cars
3—Double-truck city cars
4—Single-truck city cars
5—City service cars
6—Interurban passenger cars
7—Interurban express cars
8—Interurban service cars
9—Foreign cars

MISCELLANEOUS ACCOUNTS BURY MUCH INFORMATION

The company records now show, therefore, all the salient information necessary to determine the cost of work and in addition the cost of the several classes of equipment so that a decision can readily be made as to whether or not the time has arrived to discard a given type of car or electric equipment. The information derived from the subdivision of these accounts led to further analysis of other expense accounts and attention was given to account 67, miscellaneous car service expenses. This account is the dumping ground for a miscellany of charges all the way from lubricating expense to secret service costs. With the following subdivision it is easy to tell each month what some of the more important items of this group are costing:

67.1—Car lubricants.
67.2—Packing and waste for car lubrication.
67.3—Car cleaning materials.
67.4—Trolley ropes, fuses, lamps, etc.
67.5—Conductors' punches, badges, etc.
67.6—Other car service expenses.

The public may think the company never washes or cleans a car but the management knows that considerable money is being spent for this necessary work. However, we never knew exactly until operating expense account 70, carhouse employees, was divided into such accounts as would give evidence of the items upon which this labor was expended. We now have

70.1—Cleaning and washing cars.
70.2—Oiling and greasing cars.
70.3—Inspection of cars and equipment.
70.4—Other carhouse labor.

CALCULATION SHOULD BE DONE BY ACCOUNTING DEPARTMENT

Presumably some accountant will say that if the operating departments want such itemized information they should gather the data themselves and leave to the accounting department the accumulation and presentation of only such information as is required by the standard classifications. The accounting department and officials of the Northern Texas Traction Company believe, however, that the accounting department is supposedly composed of those who are expert in caring for and presenting figures and that it is no more economical to ask the master mechanic to keep clerical records of his costs than it would be to ask the auditor to repaint the office building. There is no question that the accounting department is the correct place in which to assemble the record of the company's activities. It is further apparent that the accountants should have

sufficient interest in the company's progress to outline a system that will result in the accumulation of the information in such a manner as to make it most useful to the operating department. The time required to do this is but little more than is required to record the necessary information for the standard reports, and the cost of securing it through the accounting department is much less than securing it through any other channel.

It is, of course, possible to carry subdivisions of accounts into great detail and to make the cost of securing it more than the figures are worth. However, if the system is designed to give only such information as will serve as a guide from month to month the expense is small. The subdivisions outlined above cost but little to obtain, and have, through facilitating expenditure analysis, resulted in substantial economies in car maintenance as well as in better and more efficient operation of the entire company.

Photographic Records Prove Valuable in Railway Work

Views of Construction Work, Locations of Accidents, Damaged Equipment and Personal Pictures of Employees Are Desired as a Matter of Record

EXTENSIVE use by electric railways of photographs which show actual conditions existing at a given date is indicated by the answers received to an inquiry made by ELECTRIC RAILWAY JOURNAL on this subject. Many of the larger railways have their own photographic departments employing one, two or more regular men. Among the smaller companies, where the volume of such work is not large enough to demand a man's full time, the work usually is done by a commercial photographer with whom the railway makes a special arrangement.

Two photographers are employed regularly by the Boston Elevated Railway. One is connected with the department of rolling stock and shops, while the other is in the maintenance department. The work of the former is done largely for the claim department and consists of making photographs of cars damaged in accidents, street conditions at the place of accident, other damaged vehicles, and any unusual conditions existing such as a city excavation, track work in progress, etc. This photographer is notified by the claim department of all accidents, the location, nature and cause, if it has been determined. He is called to court to identify his pictures later and explain them if necessary. Miscellaneous photographs of new cars, trucks, buses, power stations, shops, machines, etc., are also made.

The photographer in the maintenance department photographs all construction and maintenance work from time to time in order that a complete photographic record of the progress of the work may be on file, showing the method, type of construction and equipment used. These photographs are dated and filed chronologically by location. In addition to being a photographic record of the progress of the work these pictures form a valuable record for use in court cases arising from accidents.

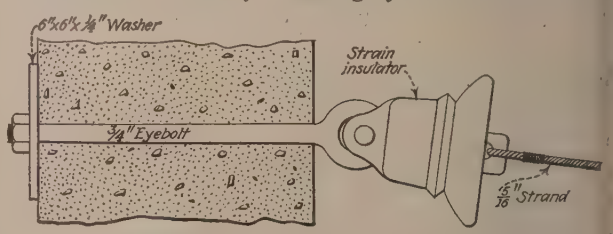
Before any actual construction work is performed on new elevated structure foundations, subways, tunnels, etc., photographs are taken of the buildings, pavement, and other surface structures adjacent to the work about to be started. These photographs are of considerable value at later dates in disproving claims for alleged damages on account of the construction. In addition to the foregoing routine work, photographs are taken of any unusual conditions on the system, such as fires, serious accidents, etc., including pictures of snow removal under varying conditions with hand labor and with the present method of loading snow by machinery. Negatives are indexed and filed in order that they may be readily accessible.

It is the belief of the management of the United Railways & Electric Company of Baltimore, that it is essential to have someone available to take pictures whenever needed. Besides taking pictures of new equipment and views needed by the claim department, the duties of the photographer include taking personal photographs of all new motormen and conductors hired. Recently this company purchased a portable moving picture machine which takes a small sub-standard size film. A special projector was bought, enabling the use of these films on a standard screen. This has proved of considerable value and it is planned to use it from time to time taking pictures of congested traffic conditions, blockades, etc., as well as for a series of moving pictures of picnic and other employee gatherings.

In Chicago the Surface Lines goes one step further. Besides having the usual equipment of cameras used in ways similar to those described in the foregoing paragraph, this company has a moving picture camera and has recently bought an airplane camera. The latter will be used to take views of the city.

Attaching Span Wires to Buildings

DURING the past few years B. R. Brown, chief engineer Dallas Railway, Dallas, Tex., has taken advantage of the construction of an unusually large number of new buildings in the business district of the city, to co-operate with the building owners in eliminating trolley poles in front of these new structures. This is done by including eyebolts in the building wall when it is being erected, so that span wires can be attached directly to the structure.



Use of Eyebolts Eliminates Trolley Poles in the Business District of Dallas, Tex.

Eyebolts for the attachment of span wire to new buildings are included in the construction. The length of the eyebolt is dependent on the thickness of the building wall.

An accompanying sketch shows the design of fastening used for this purpose. The eyebolts are ¾ in. diameter of a length depending on the thickness of the building wall. Span wires of 5/16-in. strand are then carried on Victor bell-type strain insulators, as shown in the sketch.

Many installations of this kind are being made in the business district of the city. No trouble has been experienced in getting the permission of building owners for the attachment of span wires in this way.

Fourteen New Interurban Cars of This Type Are in Operation Between Buffalo and Erie

Buffalo & Erie Cars Have Novel Features

Built to Compete in Comfort of Travel with the Most Luxurious Automobile, These Cars Are Operating in Daily Service Between Buffalo, N. Y., and Erie, Pa.—Chairs, Cross Seats and Longitudinal Seats Provide a Diversified Arrangement

ONE of the most conspicuous advocates of attractive and comfortable rolling stock among electric railway operators is Chandler & Company, Inc., New York and Philadelphia. Among the properties ntrolled by this organization is the Kentucky Traction Terminal Company of Lexington, Ky. The very attractive cars put in service on that line some two years go attracted wide attention in railway circles as marking an important departure in the provision of greater mfort in one-man car design.

Last fall the Chandler organization purchased a controlling interest in the interurban electric line between uffalo and Erie, formerly belonging to the Buffalo & ake Erie Traction Company. This line had been in ie hands of a receiver for seven years and had been ell maintained, but naturally very little in the way of ew equipment had been added. On assuming control the property on Jan. 1 the new owners changed its ame to the Buffalo & Erie Railway and began a system rehabilitation, particularly in the way of new one-an rolling stock, which has made the line conspicuous nong the interurban roads of the country.

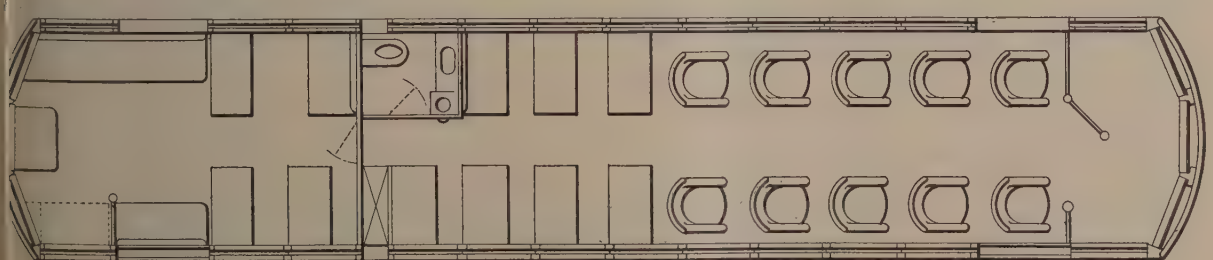
The old schedule between Buffalo and Erie called for running time of four hours. The present service akes three hours by limited train and four hours by cal. The average speed of the limited cars is 36 m.p.h. outside the two terminal cities and they have a free running speed of 60 m.p.h.

The principal feature of the cars, however, is not their speed but the attention which has been given to the design and construction to facilitate boarding and alighting and to improve the comfort of riding. It was the purpose of the management to provide a car which would not only be as comfortable as a limousine, but would be run at a higher average speed and would also provide may conveniences which would be impossible in an automobile. In consequence, special attention has been given to the riding qualities of the car, the arrangement of seating and the seats themselves, insulation against noise and heat, the interior fittings of the car, etc.

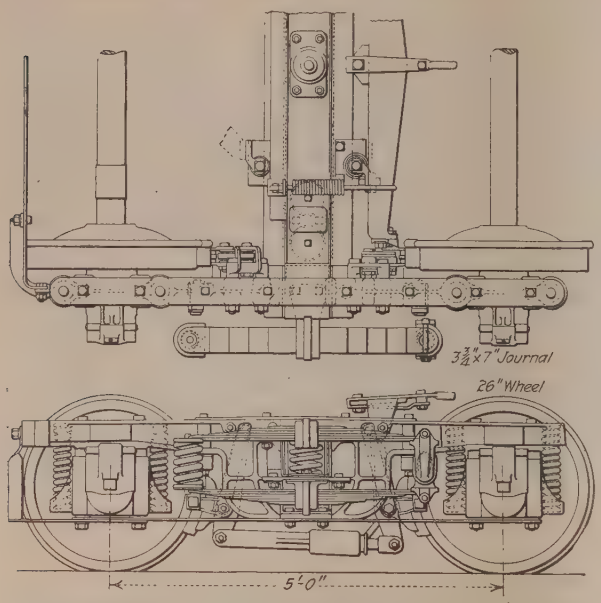
The principal dimensions and other data in regard to the car, of which the company has fourteen, appear in the accompanying tables.

The new cars are built for single-end operation. They have Cincinnati Car Company curved side construction with steel side panels, short wood window posts and wood letterboards.

Sliding doors and stationary steps are provided on the right-hand side of each vestibule. Both front and rear doors are operated by pneumatic door engines under the control of the operator from his position on



There Are Ten Individual Chairs in the Front of the Car, with Cross Seats and an Observation Compartment in the Rear



Combination Semi-Elliptic and Coil Springs Are Used on the Trucks of the New Cars

the front platform. Safety car equipment is used. The front end is used for entrance and exit, the rear door being for emergency exit only.

Especially large sash are used in the front and rear vestibules. The company emphasizes this point by advertising with the slogan "Every car is an observation car." To gain a still better outlook, the two wing sash, front and rear, which are also of ½-in. polished plate glass, are set stationary between the vestibule posts, without any sash frame. The center front vestibule sash is also stationary, but that in the rear of the car is of the outside sliding type.

The car interior is finished throughout in plain mahogany, with the ceiling in white birch veneer in two-window sections, the joints being covered by neat mahogany molding. The space between the frieze over the windows and headlining, usually occupied by advertising cards, is equipped with continuous rod parcel racks. These racks have coat hooks at each seat section and are finished in mahogany enamel to blend with the general interior decorating scheme.

An attractive feature of the general interior finish is the elimination of all bell cords and light fixtures or other parts of the equipment which usually give an irregular appearance to the ceiling.

An important feature of the car, unusual except in so-called parlor cars, is the treatment given to the seating. As shown in the plan, at the front end a ten chairs, five on each side. Immediately behir these are the cross-seats. Four are on one side, wh on the other side there are three cross-seats and t toilet. In the rear of the car is the smoking compar ment, which has four cross-seats, two longitudinal sea and one folding seat which is placed in front of t emergency door.

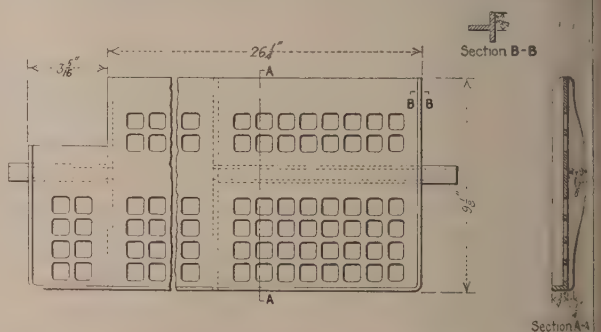
All of the seats are especially designed to be as con fortable as those in a luxurious automobile. They a upholstered in green plush, which was selected becau it was considered cleaner and cooler than any oth material, and it is expected that it will wear better.

SEAT SPACING AMPLE

The spacing of the seats is 33 in. instead of 30 in on the old cars. With closer spacing and all cross seats it would have been possible to seat 55 passenge instead of the 41 for which seats are now provide The company believes that it is better to have all of th passengers comfortable and seat only 41 than to hav seats for fourteen more and have some become uncon fortable during a long trip.

The purpose of having both chair and cross-seats to give a diversified seating. The experience of th company has been that, generally, as passengers ent the car, eight of the ten chairs are first taken. The the passengers go to the longitudinal seats.

The chairs are patterned in shape quite closely afte those used in Pullman chair cars, but one or two speci features about them should be mentioned. One is th arm rests, which are unusually long and especially we padded. Another feature is the foot rests, which ar of cast aluminum, set at a comfortable angle. The are 8½ in. long by 4 in. wide, with a heel edge. Th foot rest for use with the cross seats is illustrated i the engraving below. Another somewhat nov feature of the chairs is the robe cord on the back fo



Aluminum Foot Rest for Cross Seats. Individual Foot Rests Are Provided for the Chairs

SPECIFICATIONS AND WEIGHTS OF BUFFALO & ERIE INTERURBAN CARS

Length over dashers	44 ft. 2 in.	Wheel base	5 ft.	Headlights	Two d.c. Crouse-Hind
Length over body	35 ft. 6 in.	Size of wheels	26 in.	Journal bearings	Bronz
Length of platforms	4 ft. 4 in.	Interior finish	Mahogany	Journal boxes	Cincinnati Car C
Rail to top of trolley boards	10 ft. 8½ in.	Single-end operation.		Lightning arresters	G. E., aluminum, type 1
Rail to bottom of side sill	28⅞ in.	Weights:		Motors	Four 247-I and 264, inside hun
Rail to step	16 in.	Body	17,200 lb.	Enamel	Du
Step to platform	14 in.	Electrical equipment	7,580 lb.	Sanders	Nichols-Linter
Ramp in car floor	2¾ in.	Air brake	1,480 lb.	Sash fixtures	Cincinnati Car C
Post centers	33 in.	Trucks	10,680 lb.	Seats	Hale & Kilbur
Clear height inside	7 ft. 6 in.	Total	36,940 lb.	Seating material	Plus
Extreme width	8 ft. 10⅝ in.	Air brakes	General Electric Co.	Slack adjuster	Gould Automat
Bumper extensions	5 in.	Armature bearings	Sleeve bronze	Springs	Union Spring & Mfg. C
Seating capacity	41	Bumpers	Cincinnati Car Co.	Step treads	Cincinnati Car C
Width of seats	40 in.	Center and side bearings	Cincinnati Car Co.	Trolley retrievers	Ohio Bras
Width of aisle	20 in.	Conduits and junction boxes	Cincinnati Car Co.	Trolley base	Ohio Bras
Door openings	36 in.	Control	K-35 pp.	Trucks	Cincinnati Car C
Partition door opening	22 in.			Ventilators	Nichols-Linter
Saloon door opening	19 in.			Wheels	Standard 26 in
Truck centers (approx.)	25 ft. 10 in.				

nging articles of apparel. This cord can also be used a hand grip.

The cross-seats are equally comfortable. They are in. wide and have straight-edged cushions with ing edges and have upholstered arm rests. The n rest on the aisle side is especially long and is holstered in plush. The arm rest on the side toward e window is of leather, so that it will not be damaged case the rain should beat in. These seats are also uipped with long aluminum foot rests, shown in one the illustrations.

The upholstery of the seats in the smoking compartnt is green plush, like that in the body of the car. e two cross-seats on the left-hand side in this comrtment face each other. Provision has been made that a folding-leg card table may be placed between ese seats. The seats in this compartment are also arranged that space is provided for a few trunks other light baggage.

A feature promoting comfort in connection with the

The cross-seat and panel types of electric heater are supported on or from a steel panel, located at the inner junction of the side wall and the floor and extending the full length of each side of the car.

These heaters are controlled by thermostatic equipment, usually set at 65 deg. F.

Assurance of a continuous supply of fresh air is provided by twelve exhaust type ventilators, equally spaced in two rows along each side of the trolley board and two adjustable hatch type intake ventilators located in the vestibule hood at each end of the car.

The side windows have double sash, with the top half stationary and the bottom half arranged to raise so as to give a maximum window opening. All side body and vestibule windows are equipped with storm sash, which are replaced in the summer months with individual window guards.

Owing to the length of the trip, toilet accommodations are necessary. The toilet is on the left side of the car, between the main and smoking compartments, with the

Three Types of Seats Are Provided in the New Buffalo & Erie Railway Cars; Individual Chairs Are at the Front, Cross Seats Occupy the Center Portion, While at the Rear Is an Observation Section

eating is that the truss plank running the length of the ar is made wide enough so that a person can rest his oot on it in comfort. In the Buffalo & Erie car this edge is about 4½ in. wide.

Precautions Taken to Insure Comfort

Particular care was taken to protect the car against old and noise. For this purpose the side walls and ends of the car are insulated with 2-in. compressed cork, which is placed directly against the steel sheathing. Between the headlining and the roof there is an insulation of ¾-in. hair felt. The flooring is of double thickness with heavy building felt insulation between floors.

The floor covering under the seats is ¼-in. battleship linoleum. Aisles and platforms are protected by wide, flat aisle strips, making a comfortable, well-insulated and sanitary floor.

The lighting is novel. There are no fixtures or shades, but the entire ceiling is used as a reflector. Lamps are of the mill type, held close to the ceiling in inverted porcelain receptacles.

There are 21 panel-type electric heaters, nine of the foot-rest type, and one cab type. The panel heaters are spaced uniformly on each side of the car body. One foot-rest type of heater is located under each cross-seat just in front of the wide foot rest.

entrance from the main compartment. It is fitted with wash stand, flush hopper and water tank. The door is arranged with an electric lock, so that when the car enters a town the motorman can lock the door so that it cannot be opened from the outside and can unlock it when the car leaves the town. A water cooler, with separate ice and water compartments, is located in an alcove in the front of the toilet partition. Conveniently near it is a paper cup holder.

The exterior of the car is painted a medium cadmium yellow, with harmonizing striping, lettering and numbering. The cars are named as well as numbered, the names selected being those of the cities through which the line passes.

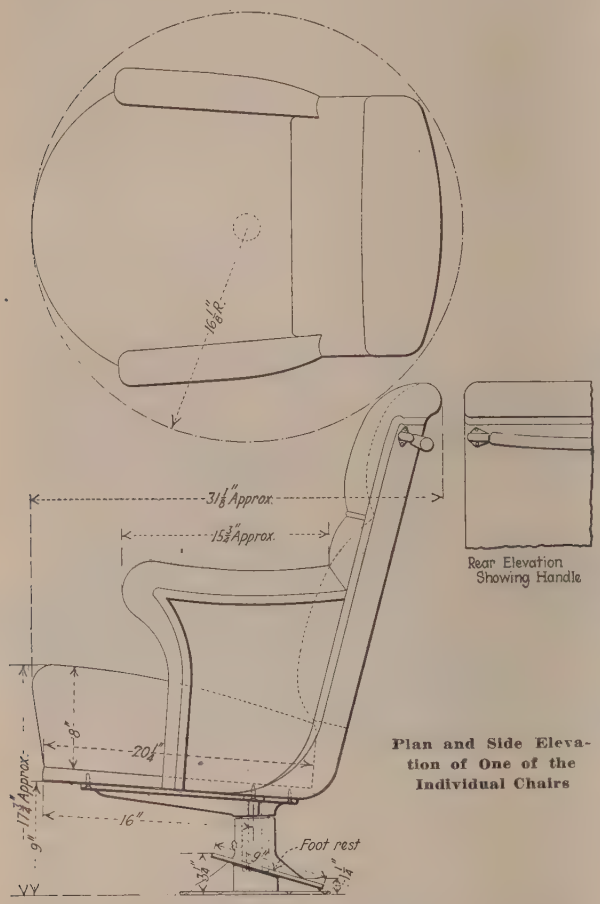
The trucks are of a special design for high-speed service and have a combination of semi-elliptic and coil springs with journal box springs. The coil springs are made especially long to insure good deflection and the best possible riding results. The wheels have a diameter of 26 in. A side elevation and plan of the truck are given on page 204.

Other Equipment

Each vestibule is protected by a steel anticlimber, recessed at the center to take the drawbar, and carrying a pilot underneath.

Above the front bumper are two 115-volt, 500-watt headlights with crystal reflectors, one on the dash and the other on the hood. These headlights are wired in series and are controlled by a selective switch so that either or both may burn bright or dim. When both headlights are at full force a strong beam of light is thrown along the right-of-way.

Although the car is single-ended, there are two trolleys, that in front being for use in emergency operation. Both are equipped with trolley retrievers, the one for the front trolley being on the trolley board on the roof.



Plan and Side Elevation of One of the Individual Chairs

The motor equipment is quadruple with 40-hp. field tap motors and single-end K type control. The gear ratio is 51:22, which gives a free running speed of approximately 55 m.p.h.

The cars are equipped with single-end straight air brake equipment, with all emergency and safety features, including the usual air whistle, which is of the duplex marine type. There is also, for emergency use, a powerful Klaxon horn.

Method of Collecting Fares

One of the difficulties heretofore found in operating one-man cars over long distances has been the method of collecting fares. The Buffalo & Erie Railway has solved the difficulty as follows:

On entering the car the passenger, provided with a ticket purchased from the regular ticket agent, has his ticket punched and passes to his seat. On leaving the car he presents the ticket to the operator, who is thus enabled to check the rider as to the distance he has traveled. Should a passenger pay a cash fare, the operator makes out a duplex receipt, one copy of which is kept by the operator and the other delivered to the passenger, who, when leaving the car, redelivers the receipt to the operator.

The Readers' Forum

Is a Standard for Electrification Desirable?

New York, July 27, 1925.

To the Editor:

I have read with interest the editorial in your July 11 issue entitled, "A Standard for Electrification is Highly Desirable." The elimination of waste as exemplified by the efforts of the Division of Simplified Practice in the United States Department of Commerce and Labor and of the American Standards Committee and others has rightly made "standard" a word to conjure with, but I am not so sure of its applicability to railroad electrification.

A "standard" in making brick, or lumber, or axes, for example, indicates uniformity in dimensions and quality. The adoption of such "standards" by manufacturers generally makes for decreased cost of production and smaller inventories and therefore results in reduced costs and increased convenience. A "standard" method of testing insulation or of determining the rated capacity of a motor as prescribed by the American Institute of Electrical Engineers Standards Committee provides uniform procedure and thereby simplifies the tasks of both the manufacturer and the user.

The foregoing two illustrations indicate of what the average man thinks when referring to a "standard." Obviously neither applies to railroad electrification. They do not even apply to steam railroad operation, because although steam locomotives have been used for a very much longer time than electric locomotives they have not yet become "standard" in either of the above senses.

What, then, does this different use of the word "standard" mean when applied to electrification? That question is not so easy to answer, but for the purpose of illustration and argument I am going to suppose it means just two things, first, that only one frequency may be used for all the electric power supplied, and second that all locomotives shall be transferable from any electrified road to any other. Perhaps some one will say that I am not going far enough. Maybe so—but before trying to go farther, let's see what happens by going this far. Now, first as to frequency. About 75 per cent of the alternating-current power is now generated at 60 cycles, and 22 per cent at 25 cycles. New installations are mostly 60 cycles, so the 60-cycle preponderance is increasing. Why have two frequencies? Why not make them both the same? The 60-cycle companies say "Fine, but you cannot expect us to change—we are in the majority. Besides, 60 cycles is better for incandescent lighting. The lamps do not flicker and it is quite satisfactory for power as well, and it is being generally accepted as the standard frequency."

But the 25-cycle systems, though totaling a smaller per cent, include some important and by no means small installations. The Niagara Falls development is at 25 cycles as are those at New York City (largely)

nd Boston. Most of the big railroad electrifications e 25-cycle power—the Pennsylvania, the Long Island, e New York Central, the New Haven, the Norfolk Western and the Virginian among others. The total mbined generating capacity at this frequency runs to the millions. If 60-cycle frequency is to be used l these must be left out of the picture because they rtainly will not change over. Besides, 25 cycles is tter for their purpose—better for the alternating-rrent roads because it permits the use of the single-ase motors, which 60 cycles does not, and better in lesser degree for the roads using continuous current otors because of improved conversion conditions and ss induction.

If the railroads which may hereafter electrify should dopt 60 cycles they will do so because they give pref-rence to the convenience of the power companies rather an to their own pocketbooks.

The foregoing indicates a deadlock right at the start n my first supposition of a uniform frequency standard. low about the second, viz., to make all locomotives nterchangeable? At present the Pennsylvania and the New Haven might perhaps interchange if their clear-nce diagrams permit or the New York Central and he Long Island, or the Norfolk & Western and the Virginian—and there we stop. None of them has nterchanged nor seems likely to. Some might if, as nd when we have another World War. If a 60-cycle rolley current should become "standard" no locomotive ow operating on any of these roads nor on the St. Paul could use it, so my supposition as to a second "standard" is in difficulties.

Let's be practical and face the facts. What is the neasure of how "desirable" a "standard" would be nd what would it really amount to? Today we have he 600-volt continuous current locomotive collecting from a third rail, the 1,500-volt continuous-current type collecting from a trolley, the single-phase and split-phase and motor-generator types, all collecting from the 11,000-volt, single-phase trolley; with the possible rectifier type in the offing as well. Is there any one bold enough to say that any of these has reached the limit of development and will never be improved? On the contrary, are we not morally sure that they all will be improved? And isn't it to every one's interest that they should be—and let the fittest survive? It isn't conceivable that any one type could now be selected and designated "standard" and all the rest put into the discard. In other words, standardization is fine for a stable industry but spells stagnation as far as improvements are concerned, and is therefore fatal to a progressive industry like that with which we are dealing. All of which points unmistakably to the conclusion that now is not the time to define "standards" for railroad electrification. It would be about the worst thing that could happen to the railroads.

The railroads want a reduction in the cost of electrical equipment and in its maintenance and operation after purchase. That is exactly what they will not get by "standardization." The need of the hour is an intensive study of all types of electric traction systems to the end that each may be improved and simplified to its ultimate limit. Certain fundamentals will gradually become common practice by the force of their own economic value, and the calamity of throttling progress through mistaken zeal by too early restrictions will have been avoided.

Lest any steam railroad executive may be misled by the foregoing discussion into thinking that the electrical people do not know their own minds and therefore he had better postpone action, let me call attention to the fact that all of the variations in the present electric locomotive design, important as they may be, are differences by reason of which some locomotives cost more than others and some operate more efficiently than others. However, every type so far built has operated with signal success. The fundamentals of electric traction are possessed alike by all, and many as are the present types of electric locomotives, they are outnumbered over and over again by the various types of steam locomotives. Probably every large steam railroad has in operation today more different kinds of steam locomotives than all the different kinds of electric locomotives put together, and thinks nothing of it. Any railroad may equip with any existing type of electric system and have the comforting assurance not only that it will function properly but that both the first cost and the operating results can be predicted within an inconsiderable degree of error.

By all means let us proceed with the development of this very important art in a natural and orderly way and without chasing a rainbow or worshiping a fetich called "standard." CALVERT TOWNLEY.

Points Overlooked by Government Ownership Advocates

PHILADELPHIA, July 30, 1925.

To the Editor:

I was surprised to see in your issue of July 25 a quotation from an address made before the League for Industrial Democracy by Delos F. Wilcox.

Mr. Wilcox tries to make out the coming necessity of government ownership. He says: "Increasing cost of capital under private ownership is one of the compelling arguments in favor of public ownership." He does not tell the public that the same people who supply the money for ownership of public utilities also supply money to the government with which to buy public utilities in case of government ownership, nor does he call attention to the fact that the increasing cost of capital was owing to war demands, and that this cost is now decreasing instead of increasing.

Neither does he point out that the decrease in capital obligations under government ownership is brought about by taking money from the taxpayers to cause this decrease, and that these are enforced contributions on the part of the taxpayers instead of voluntary ones.

He speaks about capital having no objection to wage increases if they can be passed on to the public. Though he has mentioned the Boston experiment in another connection, he does not point out in this connection the very high wages paid by the Boston Elevated, which the public, in turn, is called upon to pay in increased fares, and, where these are not sufficient, in the shape of enforced contributions from the taxpayers, paid by various cities to which the company's cars run.

Somehow or other Mr. Wilcox does not seem to be very frank with the public; somehow or other facts in their proper relation—what is usually called the truth—never seem to fit in with the government ownership game or with the games of the aiders and abettors of government ownership and those who prepare the way for it. FRANCIS RALSTON WELSH.

Association News & Discussions

Pacific Coast Claim Agents Convene at Los Angeles

Training of Adjusters and Investigators, Problems of Traffic Congestion and Planning for Emergencies Discussed— New Officers Elected

CLAIM agents from various electric railways throughout the Pacific Coast and Western states convened at Los Angeles on July 22 to hold the eighteenth annual convention of the Pacific Coast Claim Agents' Association.

The initial meeting July 22 was opened by President S. A. Bishop, general claim agent Pacific Electric Railway. D. W. Pontius, vice-president and general manager Pacific Electric Lines, gave the address of welcome to the visiting delegates, who represented electric railways from western Canada, the Rocky Mountain States and as far south as San Diego.

The first day's program was given up principally to discussion of the training of claim agents. The principal paper on this subject was by S. H. Craddock, chief investigator Los Angeles Railway. His subject was, "Methods of Training Claim Adjusters and Investigators." It was forcibly brought out in the discussion that men advanced from actual train operation usually develop into the best claim agents. It was shown that important training in safety measures as drilled into trainmen was advantageous to their work.

Dr. B. F. Boynton, general claim agent Portland Electric Power Company, who was the moving spirit in the organization of the Claim Agents' Association. eighteen years ago, and secretary of the association, stated, "My observation is that perhaps 96 per cent of the accidents that occur could have been prevented by the exercise of proper care."

On the second day of the convention one of the most interesting subjects was featured by Dr. W. L. Weber, chief surgeon Pacific Electric Railway, in his paper, entitled "Will Re-Examinations Reduce Operating Costs?"

The afternoon session of the second day was given up to a discussion of traffic matters in large cities. E. B. Lefferts, manager safety department Auto Club of Southern California, offered an interesting paper entitled "Methods of Facilitating Vehicular Traffic in Cities."

The speaker in his paper discussed the advisability of removing surface cars from the more traveled streets. It was his belief that until separation of different types of traffic is accomplished all other attempts will be only makeshifts, not only in the elimination of traffic delays, but also in the elimination of intersection accidents. He stated that the increase of speed will not tend to remedy our traffic problems. A recent test was made by sending out two automobiles through the crowded section of Los Angeles. One of the autos observed all traffic regulations. The other, which exceeded the speed limit whenever possible, was only able to save one-third of a minute per mile.

Discussion of this subject was participated in by the chiefs of police of Portland, Ore., San Francisco and Los Angeles. Some of the vital points mentioned in the discussion were future plans for parking places beneath public parks and other municipal beauty spots and recommendations that street railway and vehicular traffic be separated, with one-way streets and removal of parked cars from the downtown streets. It was predicted that within a few years such drastic measures would be taken in the case of the large cities of the country.

It was further urged during the discussion that there must be co-operation on the part of the public to prevent accidents. However, it was also stated by the San Francisco traffic chief that street cars should be required to obey traffic signals no less than other users of the streets. Captain Gleason also emphasized that, "Another line along which you claim agents can make yourselves useful in promoting safety is to educate the public in getting on and off street cars with a minimum of delay and confusion. I believe strictest rules should be observed in this matter."

Captain Heath, Los Angeles Police Traffic Department, advocated rapid transit as a measure to facilitate transportation and relieve congestion in metropolitan centers. This, he stated, would probably be the next step in Los Angeles.

The third day was taken up by presentation of papers by P. O. Solon, claims attorney Key System Transit Company, Oakland, on "The advantages and disadvantages of presenting claims against automobile owners and others responsible for damage to company property," and by J. H. Handlon, claim agent Market Street Railway, San Francisco, on "Perfecting plans for references that claims departments in an emergency can be readily enlarged to meet any unusually serious accident that may arise."

The delegates were of the general belief that the motor vehicle really presents the greatest hazard to the public safety, exclusive of any other agency. One of the suggested remedies was the requiring of every automobile driver to carry an indemnity bond.

At the close of the third day's session the officers elected were:

V. F. Bennett, attorney San Diego Electric Railway, president; C. R. Peck, Portland, Ore., first vice-president; F. J. Furman, Butte, Mont., second vice-president; A. L. Levinsky, Stockton, Cal., third vice-president; B. F. Boynton, Portland, Ore., secretary-treasurer.

San Francisco was selected as the place for next year's convention, while the date is to be determined later by the executive committee.

COMING MEETINGS OF *Electric Railway and Allied Associations*

August 12—Metropolitan Section A.E.R.A., Summer Outing at Pelham Bay Park.

August 13-14—Wisconsin Utilities Association, Hotel Wausau, Wausau, Wis.

August 27-28—Iowa Electric Railway Association, Operators' Section, Hanford Hotel, Mason City, Iowa.

Sept. 10—Central Electric Railway Master Mechanics Association, Grand Hotel, Anderson, Ind.

Sept. 28-Oct. 2—National Safety Council, Cleveland, Ohio.

Oct. 5-9—American Electric Railway Association, annual convention and exhibits, Young's Million Dollar Pier, Atlantic City, N. J.

Oct. 21-23—American Welding Society, Boston, Mass.

Meeting the Emergency of a Serious Accident*

BY J. H. HANDLON
Claim Agent Market Street Railway, San Francisco

BEFORE attempting to decide upon the methods that should be adopted to meet an accident of alarming proportions, it is well to consider what assistance can be secured in the event the claims department force is insufficient in number, what other departments of the company can be utilized and who are the individuals in those depart-

*Abstract of a paper presented at the eighteenth annual convention of the Pacific Coast Claim Agents' Association, Los Angeles, Cal., July 22-25.

nts whose services can be used to vantage.

Employees with former experience in claims department, trainmen or her employees who substitute for restigators during the vacation riod, employees of the legal depart-ent or trial attorney's office, inspec-rs and clerks from other departments the company, etc., can be pressed to service.

Friendly relations should also be tablished beforehand and maintained th the police, hospital and morgue thorities so that quick access can be ined to their records and at the same me their co-operation and assistance cured.

Directories, maps of the system, reet locations, telephone addresses of aims department employees, of hospi-ls, police stations, etc., should be col-cted and compiled for immediate ref-ence. Information can be obtained rough the carhouses, shops, etc., of e telephone numbers of trainmen and her employees who reside in the cinity of the accident and such em-loyees can be requested over the lephone to lend their aid in gathering e facts. Through the division super-ntendent or carhouse office employees e names of business men having tores at or near the location of the ccident can quite often be learned and lephone communications with these torekeepers established.

Procedure in Case of Accident

When the first word is received of an nusually serious accident representa-ives of the claims department should asten at once to the scene of the acci-ent, while others should be detailed to he receiving hospitals, for the purpose f coming in direct contact with the ufferers, their relatives or friends. The medical department should also be promptly notified and the company doc-ors informed of what is required of hem.

The claims department representa-ives who first reach the scene of the ccident, after immediately ascertain-ng the disposition of the injured ersons and caring for those still in he vicinity, should at once endeavor to ocate as many eyewitnesses to the ccurrence as possible, if the accident e one of uncertain liability, extend-ng their efforts to include a house-to-house canvass for witnesses within a short radius of the scene of the acci-dent.

An examination should also be made at once of the rails for evidence of oil, grease or tar. The locations of the car, injured persons or damaged vehicle, if one be involved, should also be noted, as well as the location of blood spots, evidence of skid marks or other marks on the street, etc.

Photographs should be taken at once of the physical conditions existing at the scene of the accident; also photographs of the car should be made, and other vehicles if any. It is always advisable to photograph blood spots, skid marks, etc., before they are obliterated. A representative of the engineering department could be directed to take field notes of locations of objects for future reference; also street and track measurements and distances.

Arrangements should be made for a report on the condition of the brakes, controller, fender, etc., of the street car, such reports to be obtained from the department having charge of the rolling stock of the company, as well as reports obtained from the engineering department of the condition of the roadbed and track. The company appraiser should also be instructed to examine the foreign vehicle, assuming that one has been in contact with the car, not only with a view of reporting on the condition of the vehicle, especially the efficiency of the brakes and cost of repairs to the vehicle, but with a view of ascertaining a matter of great importance, i.e., the point of contact.

Sketches should be prepared of the locations of the street lights (assuming that the accident occurred at night); the contour of the streets approaching the scene of the accident, in the event that there are ascending or descending grades; the distance between blocks, etc. The overhang of the car may also be an element to consider in determining responsibility for the accident.

Trainmen involved in the accident should be at once interviewed, assuming that they are not seriously hurt, and their version of the accident ascertained, and it is prudent to again warn them not to discuss the facts of the occurrence except with the properly authorized representatives of the company.

American Association News

Coffin Prize Contest Brings Thirteen Presentations

ENTRIES for the third Charles A. Coffin Award received at association headquarters prior to the closing date, Aug. 1, are thirteen in number. The following companies have submitted presentations:

Beaver Valley Traction Company, New Brighton, Pa.
Dallas Railway, Dallas, Tex.
Denver Tramway, Denver, Col.
El Paso Electric Company, El Paso, Tex.
Eastern Massachusetts Street Railway, Boston, Mass.
Grand Rapids Railway, Grand Rapids, Mich.
Houston Electric Company, Houston, Tex.
Nashville Railway & Light Company, Nashville, Tenn.
Northern Ohio Traction & Light Company, Akron, Ohio.
Northern Texas Traction Company, Fort Worth, Tex.
Pennsylvania-Ohio Electric Company, Youngstown, Pa.
Pittsburg Railways, Pittsburgh, Pa.
Tri-City Railway of Iowa, Davenport, Iowa.

The Coffin Award was offered for the first time in the year 1923, when seventeen presentations were made by companies claiming recognition in the field of improved transportation methods. The following year nine presentations were made. The Chicago, North Shore & Milwaukee Railroad won the first award and the Northern Texas Traction Company the second. The increase in number during the present year over that of 1924 is gratifying in that greater interest has been shown.

The Coffin Award committee, consisting of James H. McGraw, Frank R. Coates and J. N. Shannahan, chairman, will determine the winner. The announcement will be made at the convention of the association to be held in Atlantic City, Oct. 5 to 9.

Special Reports Available

SPECIAL reports of the American Electric Railway Association Bureau of Information and Service have been prepared and are available to member companies in good standing upon request, as follows:

Bulletin No. 36—*Accident Statistics of Electric Railways*—1924: Comparative analysis and summary of accident data in 1924 and 1923 reported by 181 companies. The information includes the total number of accidents, divided among the more common types, the number of personal injuries and number of fatalities; the total cost of all accidents, the ratio of cost to gross earnings, the cost of settlements and the cost of the claims department. In addition there is a summary giving a detailed comparison on various unit bases of the accident record in 1924 and 1925.

Bulletin No. 37—*Methods of Increasing Electric Railway Traffic:* This is a compendium of material collected from various sources describing methods adopted and experiments tried out by electric railways to increase their traffic. The subject is subdivided among six main topics: Public Relations and Publicity Methods, Modernizing Equipment, Improvements in Schedules, Speed, etc., Fare Systems, Weekly Pass, etc., Use of the Motor Bus, Coordination of Service, etc., Miscellaneous Methods.

Bulletin No. 38—*Trend of Electric Railway Operations:* A month by month record of the traffic revenues, expenses, taxes, car-miles, operating ratio, average fare, etc., of a group of 80 companies since January, 1920. The present bulletin brings the record of these 80 companies down to May 31, 1925.

Bulletin No. 39—*Motor Bus Operations in California:* Contains balance sheets, income statements and operating statistics and detail of operating revenues and operating expenses of all Class "A" (annual revenues over $20,000) motor bus companies in California for the calendar year 1923. Includes data on freight as well as passenger carrying vehicles. Abstracted from the annual report of the California Railroad Commission for the year ended June 30, 1924.

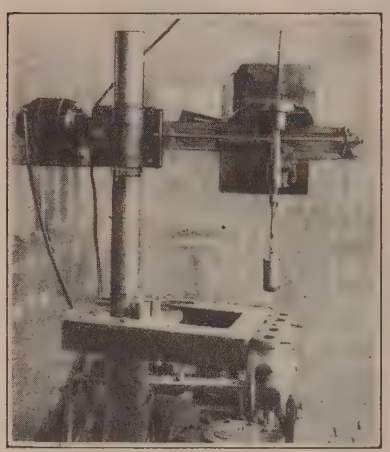
In addition to the above, supplements to the Wage Bulletin, Fare Bulletin and Cost of Living Studies (Bulletin No. 40) have been prepared, bringing them down to date.

Maintenance of Equipment

Compressor Valve Grinding Machine

By J. L. Brown
Master Mechanic Dallas Railway, Dallas, Tex.

JUST as the power output of a gasoline motor depends on the proper seating of the valves, so does the efficiency of an air compressor fall off rapidly if the valves do not fit tightly. Grinding valves by hand is a long and tedious process. This accounts partly for frequent postponement of grinding until the compressor is overworked to keep up the necessary air supply.



Valve Grinder Designed and Built by Dallas Railway

This machine laps in compressor valves. The reciprocating motion given by the spindle produces a job which is comparable with that obtained by hand grinding.

In the accompanying illustration is shown a special power-driven automatic valve grinding machine designed and built in the shops of the Dallas Railway, Dallas, Tex. This machine is arranged so that the actual grinding operation is carried out in a manner very similar to the hand process. The resulting fit is equal to a hand-ground job. During the grinding process, however, the workman is free to go about other duties while the machine does the actual lapping.

A swinging arm carries the driving motor and a crosshead, so that after the compressor head is clamped in place to the bed of the machine the spindle can be quickly brought into place over the proper valve seat. The driving mechanism above is arranged so that the motion of hand grinding is duplicated. After grinding compound has been spread on the surfaces to be finished, the valve is revolved in a reciprocating cycle. As the machine continues to operate this motion is so arranged that the valve is slowly turned about a complete circle, while at the same time it revolves back and forth on the seat. In addition, the valve is periodically lifted from the seat so as to prevent scoring. At the same time this speeds up the action of the grinding compound. The finished job is considered equivalent to that which can be obtained with hand grinding.

Motor Shell Hinges Replaced by Bolts

HINGES on old split frame shells of GE-57 motors used by the United Electric Railways, Providence, R. I., have been replaced by bolts. The hinge pins and their supporting brackets on the upper half of the shell have been built up by welding into solid blocks. Through each of these a bolt hole has been drilled in line with the existing hole of the fastening on the lower half of the shell. One-inch bolts are used to hold the two halves together. Part of the bolt head is cut away to allow clearance for the motor suspension bar.

It has been found by the company that four bolts hold the motor shell more tightly closed than do two bolts and two hinges, consequently there is less wear on the points of contact and danger of inaccurate alignment of pole pieces is reduced.

While there is a theoretical advantage in having the shell hinged, and thereby obtaining access to the armature simply by lowering one half of the shell, in actual practice, usually not only the bolts but also the hinges are unfastened and the entire lower half of the shell is removed. As this can be done just as easily with four bolts, no greater labor is involved and a more satisfactory fastening is obtained.

Machine and Light Control Interlocked

BESIDE the emery wheels used in the shops of the Reading Transit Company, Reading, Pa., powerful electric lights have been placed to facilitate the work of the man using these machines. The lamps are attached to pull sockets located near the ceiling of the shop. The emery wheels are belt-driven from a shaft which is also located near the ceiling. Control of the machines is by means of tight and loose pulleys, the belt being shifted through the use of the ordinary fork and hanging rope. The pull socket chain is attached to this rope in such a manner that a single movement of the rope serves not only to start the machine but also to turn on the light. The advantages of this arrangement are that the lights are turned off whenever the machines are out of service and also that the burning of the light serves as a warning that the wheel is in motion.

Emery Wheel and Adjacent Electric Light Are Controlled by a Single Rope

Painting Dash Signs by Spray Method

DURING the past year a complete change has been made at the New Haven shops of the Connecticut ompany in the method of painting ash signs. Instead of the former and-painting process a spray gun is ow used. Excellent results are eing obtained in less time and at ss expense.

Under the new arrangement the etal sign is first dipped into a tank f white lacquer. This tank is be- w the floor level and adjacent to it as been erected a sloping rack where he signs are hung to dry. Drip- ings thus run back directly into the ank.

Lettering is done by a reversal of he ordinary stencil process. A ma- hine has been devised to hold wood etters in position on the white sur- ace while black lacquer is sprayed nto the remainder of the sign. The etters are sawed out in the car- enter shop and a recess is cut in ach end to receive a clamp that olds the letters in position on the ramework shown in an accompany- ng illustration. After all the let- ers have been placed in their proper osition on this framework a white ign is laid on the table under the rame. By a connection to the com- pressed air system of the shop this able is brought up gently into con- act with the wood letters. When he letters are in contact with the sign the black lacquer is applied by means of a Eureka air gun.

For making a single sign there is no appreciable saving in time be- cause of the necessity to arrange the wood type letters, etc. For more than one sign there is a marked sav- ing, however, as with the hand-paint- ing process production used to aver- age about one sign per hour, whereas signs can be turned out by the spray process at the rate of one every three minutes. Another advantage is that the spray process can be carried out by a comparatively unskilled work- man rather than a high-priced sign painter. Other colors may be used if desired.

When this process was first under- taken the table upon which the signs were laid during the spray painting was surrounded by a canvas screen to prevent paint fumes from being blown all over the shop. This was found to be unsatisfactory, however, because it interfered with having sufficient light on the work. Accord- ingly, a forced ventilating arrange- ment, as shown in the accompanying illustration was installed, connecting directly with the roof.

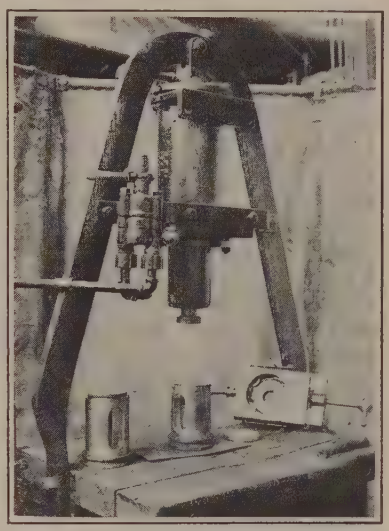
Crimping Caps on Armature Bearings

By W. H. King
Mechanical Inspector Kansas City Rail- ways, Kansas City, Mo.

ON THE Kansas City Railways a sheet metal cap is crimped over the end of each commutator end armature bearing to keep out dust and dirt. On some properties where this practice is followed the cap is spun on in a lathe. In the Kansas City shop, however, the device shown in the accompanying illustration does the work much quicker than the spinning process.

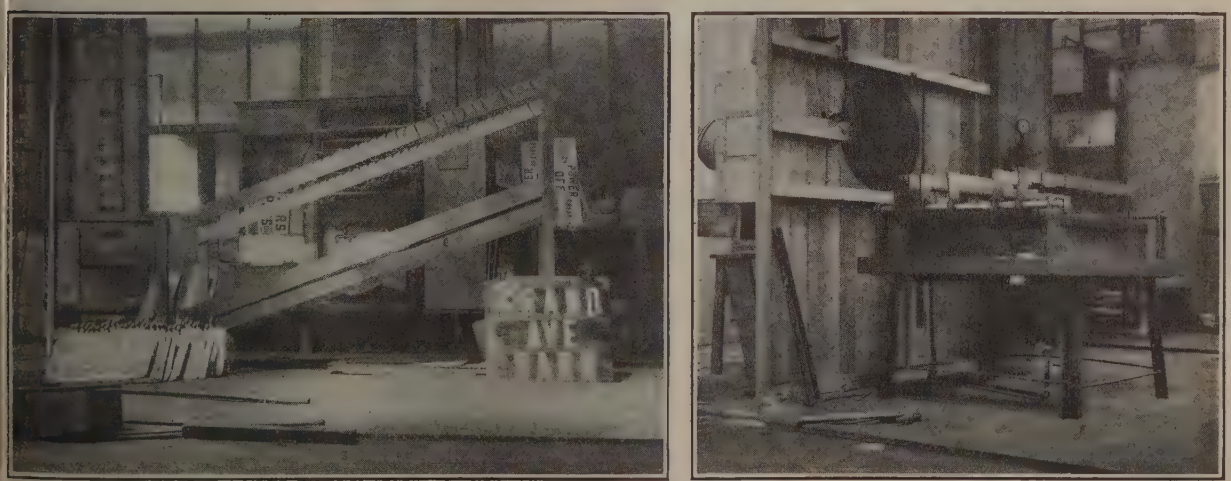
A press formed of a brake cylin- der is mounted on a small table. A stock of steel metal caps which pre- viously have been stamped and formed in the shape shown by the sample lying on the table, near the center bearing, is carried on a shelf below the top of the bench.

The crimping is done with the roll- ing tool shown on the table at the right. This has three rollers sim-



Metal Dust Caps Are Quickly Fitted to Commutator-End Motor Bearings by the Crimping Tool Shown at the Right. The Press Holds the Bearing and Cap in Position

ilar to those in a pipe-cutting die, except that they are shaped to form the cap down over the bead on the end of the armature bearing. One roller is adjustable by means of the handscrew. After one of the caps has been placed in position on the end of the bearing the forming tool is on top, the piston of the cylinder is brought down to hold the bearing in place and the metal cap is quickly crimped in place by rotating the forming tool by hand.

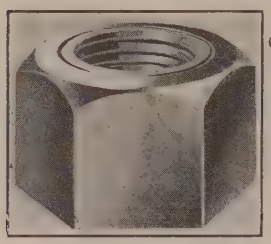


As Shown at the Left, Dash Signs Are Dipped in White Lacquer and Then Hung to Dry in This Slanting Rack. The White Signs Are Laid on the Table (at Right), Wood Letters Are Placed on the Surface and Black Lacquer Is Then Sprayed On

New Equipment Available

Wrench Tight Lock Nut

STANDARD nuts which after they are tapped have been processed to make them smaller in the bore at the top than they are in the body are now being marketed by the Campion Lock Nut Corporation, New York, N. Y. This processing feature converts the top of the nut into a non-cutting die on its top threads. These tight threads reach the root of the bolt threads and expand them sufficiently to make perfect contact between the nut and bolt.



Lock Nut Prevents Loosening Due to Vibration

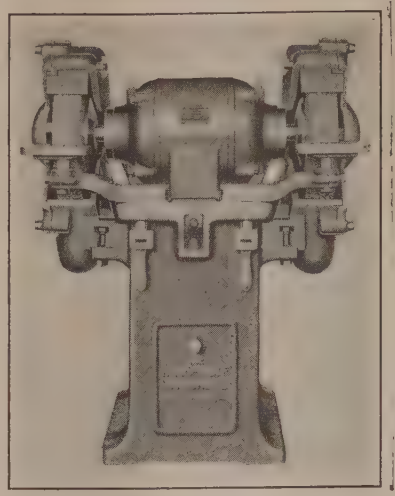
This makes the nut lock flush with the bolt end or tight on any lower portion of the bolt upon which it is used.

As there is no thread clearance between the nut and the bolt, the respective parts at the locking point are virtually solid. An ordinary wrench can be used to apply nuts of this type, but they can be released only with a tool wrench. The nuts are made in all sizes from ⅛ in. to 8 in. and in any finish or carbon. Regular nut standard dimensions are used.

Heavy Duty Floor-Stand Grinder

DESIGNED for heavy-duty work, a sturdy electric grinder has just been placed on the market by the Hisey-Wolf Machine Company, Cincinnati, Ohio. It has two grinding wheels with the driving motor mounted between them in a dust-proof housing. The motor is rated at 5 hp., but will stand momentary overloads up to 10 hp. and 50 per cent overloads for one-hour periods.

An automatic motor starter is furnished as part of the equipment, which is self-adjusting, so that it may be operated by inexperienced workmen, since the throwing on and off of the current is automatically controlled. The switch button for



Direct-Connected Motor-Driven Grinder with Adjustable Safety Guards

operation is conveniently located in front of the machine with the switch proper inclosed in the base. A detachable spring snap door provides for removal and inspection.

All grinding wheels are fitted directly to the spindle and there are full combination type wheel guards. The guards are of one-piece construction with standard exhaust pipe connection. As the grinding wheels wear, the guards may be adjusted so as to keep the periphery of the grinding wheel in close proximity to the guard, thus permitting maximum working space for the operator. A spark and chip breaker fastened to the top of the wheel guard is adjustable by means of a wing nut.

High-grade completely inclosed ball bearings are used throughout. A liberal oil chamber provides for lubrication and a drain plug conveniently located at the bottom of each chamber enables the oil to be flushed out of the reservoir at intervals for renewal and cleaning.

Steel Frame Used in New Bus Body

A NEW type steel frame body is being manufactured for intercity buses by the Woonsocket Manufacturing Company, Woonsocket, R. I. The body is built to seat 25 passengers; five leather upholstered seats holding two passengers are placed on each side of a center aisle with a seat extending across the full width of the rear of the body and holding five additional passengers.

The body has convex sides and rear end, with arched roof, wood floor, emergency exit door at the center of the rear end, a one-piece windshield at front with five sliding louver ventilators in the roof and above the windshield. The length is 21 ft. 4 in., the width outside is 90 in., the height from floor to under-side of center of roof is 68 in., the width of the window posts is 3 in., and window openings of the body are 42 in. wide by 25 in. high.

No. 10 gage, pressed steel, electrically arc welded, is used for framework. The panels are of No. 14 gage, half-hard aluminum, with three-ply Haskelite interior finish and mahogany garnish rails. The seats are of Heywood-Wakefield manufacture, full polished plate glass is used and the body is equipped with a heater, interior lights and push buttons. Lacquer finish paint is used outside.

New Type Steel Frame Body for Intercity Buses

The News of the Industry

Pinchot Sweeps Pennsylvania Commissioners Out of Office

Two members of the Public Service Commission of Pennsylvania have been dismissed during the last ten days by Governor Pinchot. No reason for this action is assigned by the Governor.

James Benn, Philadelphia, member of the commission for many years, was summoned to the Governor's office on July 30 and curtly asked for his resignation. Mr. Benn sought to have until the following day to reply, but Governor Pinchot refused this request, stating that he wanted an answer at that interview. Thereupon Mr. Benn refused to tender his resignation. The Governor promptly countered by dismissing Mr. Benn, but refused to offer any reasons.

Mr. Benn has since that time refused to consider his dismissal as legal. While he did not appear in the continued hearings on the Philadelphia Rapid Transit case on Aug. 5 it is only a temporary respite in the impending battle. Attorney-General Woodruff had contemplated filing an injunction against Mr. Benn and his counsel in the event that Mr. Benn had attempted to sit in formal hearing as a commissioner. Dr. Clyde L. King, at present secretary of the commonwealth, has been appointed to succeed Mr. Benn, but as yet has not resigned his present post. Mr. Benn set forth his position to the commission as follows:

Hereby please take notice that the action taken by the Governor of the Commonwealth on July 30, 1925, in which he undertook to remove me from the office of Public Service Commissioner, is not recognized by me as being valid, legal, or binding, and that I have declined, and do, and will continue to decline, to recognize the validity of his attempted ouster.

Article 4, Section 15, of the Public Service Company law, prescribes the causes for and the manner in which a lawfully appointed member of this commission may be removed from office. I have ignored and will continue to ignore the arbitrary fiat of the Governor, and will recognize the authority of the law only.

Therefore, I notify you that I hold myself in readiness to perform all my duties and obligations as a Public Service Commissioner, to accept, receive, and discharge assignments of duty in the hearing of cases or in any other manner whatsoever prescribed by law, and by the rules and practice of the commission.

At the resumption of hearings in Philadelphia, on Aug. 5, S. Ray Shelby of Uniontown, Pa., commissioner for six years, announced that he had just received a letter from Governor Pinchot requesting his resignation. Commissioner Shelby said in part:

The Governor sets forth no reason. For over six years I have been a member of this commission and have assiduously devoted my time and services to the discharge of my official duties and obligations. I know of no reason that would justify the Governor's request. There are matters of great public moment pending before this commission, in which I am participating, which would make me recreant to my trust and my oath of office if I complied with the Governor's demand.

Therefore, I have written a letter to him declining to resign and shall continue in the performance of my official duties.

Earlier this year L. N. Mitchell and F. J. Miller retired after the Senate failed to confirm their appointments, and Samuel M. Clement, Jr., Philadelphia, resigned last September. Mr. Pinchot upon accepting Mr. Clement's resignation indicated to Mr. Clement that he had intended to dismiss him from the commission.

The commission consists of seven members and including the King appointment the present administration has appointed five members. They are: Harold Evans, Philadelphia; J. Henry Scattergood, Philadelphia; John L. Stewart, Philadelphia; Richard W. Martin, Pittsburgh; Dr. Clyde L. King, Philadelphia. No successor has been named to Mr. Shelby.

W. D. B. Ainey chairman, is now the only hold-over member.

The commission is in the midst of important hearings, chief among which is the investigation into operations of the Philadelphia Rapid Transit Company, in which extensive testimony is being offered by Dr. Milo R. Maltbie, an expert engaged at Governor Pinchot's request to aid the Public Service Commission.

One-Man Car Cases Reviewed

Decisions Affecting One-Man Car Operation Rendered in Connecticut and in Tennessee—One Says Authority Rests with State Commission—Other Holds Law Discriminates

THE contention of the Connecticut Company, New Haven, Conn., that a municipality has no right to enforce an ordinance governing the operation of street cars was sustained by the Connecticut Supreme Court in a no error decision rendered on July 31 by Chief Justice George W. Wheeler in the suit of the Connecticut Company against the city of New Haven. The city of New Haven's ban on the double-truck one-man cars in use on the lines there is thus voided.

The opinion sustained in effect the contentions of the Connecticut Company, that a municipality cannot regulate the moving of street cars, such power being vested exclusively with the Public Utilities Commission. While in certain instances a municipality may act jointly with the public utilities commissioners in regulating street cars, the municipality may have exclusive control as far as local matters are concerned.

Chief Justice Wheeler says in part:

The city of New Haven possesses under the charter granted it by the state "not only the powers expressly granted, and those which may be necessarily implied in or incident to these, but also all which are indispensible to the attainment and maintenance of their desired objects and purposes." Under our policy, in existence for many years, New Haven, as well as all other municipal corporations of the state, is charged as the agent of the state with the maintenance in a reasonably safe condition of its streets.

The rapid and marvelous increase in the use of street railways, especially in their adaptation to through travel, which followed the legislation of 1893, indicated the necessity of additional legislation directed chiefly to two objects.

First, to place street railway companies, as well as steam railroad companies, under the supervision and control of the board of railroad commissions in respect to their operation and fulfillment of their duties to the public. Second, to make the existing control belonging to municipalities in the use of highways by street railways subject to the ultimate and supreme authority of the railroad commissioners. These objects were sought to be accomplished in "an act concerning the railroad commissioners, public acts of 1901." As it now stands the control of the use of highways for street railways as it existed prior to 1901 remains undiminished, the municipal authorities are still the agents of the state in the exercise of that control, but jointly with the railroad commissioners who in some particulars exercise the control through original and exclusive action, and may exercise it in all particulars either through original of appellate and final action.

Whenever doubt may arise is some cases, whether the municipality can act in the first instance, or in the absence of action by the railroad commissioners, we think it clear that it may so act in a case like the one before us; that is, the local authorities may, in the absence of action by the railroad commissioners, exercise the full direction and control given by statute in respect to placing electric wires and conductors in the highways by a street railway company for the purpose of transmitting and applying electricity as a motive power for operating its railways, subject, however, to final action by the railroad commissioners. It would follow from this construction of the act of 1901, that the railroad commissioners in some instances exercise exclusive control, and in some instances exercise the control jointly with the municipality; the municipality's control in these instances of joint control being subject to that of the railroad commissioners, when exercised and in some instances which affect merely the local conditions of the municipality, the control of the municipality is exclusive.

The one-man car ordinance is not the regulation of an exclusively local condition. This is plain in the case of a railway operating as the plaintiff does over a wide area and through many communities. Under the authority vested in the commission, the instances will be few where either exclusive or concurrent jurisdiction in matters of police are now vested in the several municipalities of the state, and these will be local in character, for example, the traffic regulations of street cars.

We conclude, the public utility act of 1911, now chapter 191 of the general statutes, shows, and particularly in section 3,621, a legislative intent to place the exclusive jurisdiction over the operation of street railways, aside from local traffic regulations, in the public utilities commission.

The decision marks the end of a legal controversy between the corporation and the municipality. In effect the decision means that a municipality, as represented by its law-making branch, cannot enforce ordinances enacted to direct the operation of street cars. It also means that when a

municipality is aggrieved concerning street cars it should take its cases first to the Public Utilities Commission. Should the commission decide against a municipality an appeal can be taken to the courts. But whether a municipality may take the law into its own hands and tell the Connecticut Company what it can and cannot do, was settled by the decision just handed down.

For the sake of reducing expenses the Connecticut Company took off cars operated by a crew of two men, a motorman and conductor, and on many lines put into service cars operated by one man. In several cities there cropped up objection to double-truck cars operated by one man. No objection was raised to the smaller cars operated by one man. In Hartford the city proceeded against the operation of the big one-man cars, but the case was not taken to the courts, the city being content to allow its ordinance to remain on the books without enforcement.

At New Haven, however, sentiment against the cars crystallized into the enactment of an ordinance by Aldermen on Dec. 1, 1924, which prohibited the operation of double-truck cars by one man. Mayor FitzGerald approved the act on Dec. 9, 1924, and it was to be made operative on Dec. 15.

On Dec. 14 Attorney George D. Watrous, representing the company, went before Judge Isaac Wolfe of the Superior court and secured an injunction, in which the city was restrained from enforcing the ordinance. That prevented the city officials from applying the new ordinance.

The question raised before Judge Wolfe was: "Did the city have authority to enact such an ordinance?" The pleadings in the case were submitted to Judge Wolfe. In his decision entering a judgment for the Connecticut Company upon the pleadings, Judge Wolfe said: "The aldermen exceeded their powers in enacting such an ordinance, hence the ordinance is null and void." This decision was entered on Feb. 19, 1925. The city, represented by George W. Crawford as special counsel and by Assistant Corporation Counsel Thomas H. Robinson, appealed to the Supreme Court. The case was argued at the April session of the Supreme Court in Bridgeport.

The New Haven ordinance as drawn by the Aldermen was characterized by them as a measure "to prevent accidents, facilitate traffic, and preserve good order in the streets of the city and highway district of New Haven and secure safety of persons using said streets." In furtherance of that idea certain streets in the city and highway district of New Haven were declared to be arterial and specific highways. They were designated in the first section of the measure. Sections 2 and 3 of the ordinance laying down limitations and fixing penalties read:

Section 2. No firm, person, or corporation, or the servant, agent, or employee of any person, firm, or corporation, shall operate upon any arterial or special traffic highway within the city or highway district of New Haven, between the hours of 6 a.m. and 10 p.m., a street car carrying passengers, unless the same shall have thereon, in addition to the motorman, a conductor or other servant to assist in the care and control of said car and its passengers; provided, however, that single truck cars operated on any other than said arterial and special traffic highways, and whose routing reasonably so requires, may operate upon Congress Avenue, from Howard Avenue to George Street, upon Church Street from George Street to Elm Street, upon Chapel Street from State Street to College Street, upon Elm Street from State Street to College Street, upon College Street from George Street to Elm Street, at all hours, without such additional conductor or servant, and provided, however, that any interurban cars may be operated upon Chapel Street from the viaduct to State Street and upon State Street from Chapel Street to Ferry Street, at all hours, without such additional conductor or servant.

Section 3. Any person, firm, or corporation who shall violate this ordinance, shall be fined not more than $100 for each offense.

The Tennessee case involves the constitutionality of Chapter 129 of the Acts of 1925. The Chancellor held the act invalid. The State Supreme Court affirmed this decree. That court held that the law was too indefinite to be administered; that it created an arbitrary classification, and that if it read the act as referring to the 1920 census or any subsequent census the court would be placed in the position of legislating. The act said:

An act entitled an act to prohibit the operation of street cars within the State of Tennessee, except in cities of less than 30,000 population, on which only one operator is in charge, and to provide penalties for the violation of this act.

Section 1. Be it enacted by the General Assembly of the State of Tennessee, that it is hereby declared unlawful for any person, firm or corporation to operate, or cause to be operated, within this State, except in cities of less than 30,000 population, any street car on which only one operator is in charge, generally known as "one-man cars."

Section 2. Be it further enacted, that any person, firm or corporation found guilty of the violation of Section 1 of this act shall be fined not less than $100 nor more than $500 for each offense.

The court said that as cities of "less than 30,000 population" were excepted from the operation of the act, the extent of its application was too definite to permit of its enforcement, unless the court assumed that the Legislature had in mind some standard of population to which reference may be made. In this connection it cited the case of Riggin vs. Tyler, 134 Tenn., 577. In that case it was held that a designation of the territory to which an act applied as a county or stated "population" without more, meant a county of the stated population according to the last federal census. This interpolation identified Montgomery County and saved the act under consideration, for it dealt directly with that county in its governmental capacity. Special laws of this kind, said the court are valid. The court said:

The act before us, however, deals with street car companies, not with municipal corporations, and it would not be helped by invoking the rule of Riggins vs. Tyler. If we say that the Legislature meant to except cities of less than 30,000 population by the last census—the census of 1920—or stating it differently, that only cities of 30,000 or over by the census of 1920 were included, then we have a void enactment. Although Jackson or Johnson City might hereafter grow away out of this classification, street car companies operating therein would escape the burdens of this legislation, because these were cities of less than 30,000 according to the census of 1920. Sutton vs. the State, 96 Tenn., 697; Woodward vs. Brien, 14 Lea, 520. Such legislation has been held vicious in this state for 40 years, and necessarily so. Jackson might grow larger than Memphis but would still be exempt from such an act, because the exception is based on the population shown by one particular census.

We are asked now to go beyond Riggins vs. Tyler and to consider the exempting clause as though it read "except in cities of less than 30,000 population *by the federal census of* 1920 *or any subsequent census*, that is, to supply the words italicized.

The justification for adding words to a legislative enactment is to carry out the intention of the lawnmakers. If we read the act as suggested, it is likely that we would make a law, rather than effectuate one intended by the Legislature.

The exception of the smaller cities of the state from the operation of this act was obviously made to remove opposition to the bill from Senators and Representatives from those cities. See Journals. Who can say that these legislators would have supported the bill had it been so framed as to probably include some of their rapidly growing towns within the next five years? Who then can say it was the legislative will to pass such an act as it is urged we should make of this?

An act of the Legislature will, of course, never be declared unconstitutional if it is possible to avoid doing so. In order to save such an act, however, the court is not authorized in so reading it, or adding to it, as to make of it a new law, which it is to be doubted the Legislature ever designated. Where the intent is doubtful, the court must be more cautious.

Rather a narrow margin now separates some of the excepted cities from the bounds of their class. Some of them will likely attain a population of 30,000 by the next census of 1930. In view of the history of the act before us, it would be a violent assumption for us to say the Legislature intended that the act might operate in the excluded territory at so early a day. We can not hazard a perversion of the legislative intent even to save the constitutionality of its enactment. Such intent does not invariably conform to constitutional limitations.

It follows that Chapter 129 of the Acts of 1925 is bad. As it stands, it is too indefinite to be administered. Riggin vs. Tyler, *supra*. If we read it as referring to the census of 1920, an arbitrary classification results. If we read it as referring to that and any subsequent census, we judicially legislate.

The case is entitled Knoxville Power & Light Company vs. Frank M. Thompson, et al.

Employer Has Same Right as Employee

In a case just decided by the Indiana Appellate Court the employers had banded together and said the rate of pay for a certain piece of work was to be $1 an hour. The defendant had given a bond of $1,000 that he would abide by the agreement, as had all other parties to it. It was found, however, that in order to secure sufficient labor the defendant had paid $1.25 an hour in some cases. Suit was brought in the county courts against the defendant and his bondsman for violation of the agreement. The lower court upheld the agreement and the case was appealed. The opinion of the higher court says:

In Indiana the law recognizes the right of laboring men to combine to promote their own interests and to enforce their combinations by any lawful means, even to the extent of picketing an employer's premises. If the employee has the right to say what wages he will work for, the employer should have the right to say what wages he will pay. If men lawfully combine to accept a minimum wage which they fix and may enforce that combination among themselves by fines, suspension or other form of discipline employers likewise may form a combination for any lawful purpose, including the fixing of a maximum wage, and enforce it by the same means available to the employees.

If labor organizations and similar associations did not have the right to enforce compliance and submission to their rules, regulations and by-laws, they would be powerless, and the courts have upheld such organizations as long as they are organized for a lawful purpose and will aid them in carrying out and enforcing all contracts with reference to the same.

Franchise Passed

Approves Operation by Cincinnati Street Railway for Twenty-five Years at Eight and One-half Cents

By a vote of 27 to 4 the City Council of Cincinnati, Ohio, passed at a special meeting on July 31 the new franchise granting the Cincinnati Street Railway the right to operate for the next 25 years, beginning Oct. 1, with the initial rate of fare placed at 8½ cents for tickets. Although it is certain that Mayor Carrel will veto the franchise, because he believes the $28,000,000 capitalization of the company provided for in the ordinance is too high, the Mayor refused to make any statement when notified that the Council had acted favorably upon the ordinance. If the measure is passed over the Mayor's veto and holds good at a possible referendum, the Cincinnati Traction Company will pass out of the picture as a factor in railway operation in the city.

The new franchise provides for an optional scaling down of the capitalization over a ten-year period and for the sale of three tickets for 25 cents, with a 10-cent cash fare to start. The franchise is of the cost-at-service type, with a fare control fund of $400,000 created to maintain the fare at a normal level. As in the 7½-cent fare ordinance, rejected by the Mayor's citizens' committee, the ordinance provides for a fractional scaling upward of the fare if the control fund goes below $200,000 or downward if it goes to $600,000 or more.

The greatest change in the proposed franchise is the provision for an amortization of $3,000,000 of the capitalization of approximately $28,000,000 over a period of ten years. This clause provides, in brief, that returns over the amount needed to keep the fare control fund at its proper level, minus the return on capital, may be put either into the control fund or used to retire capital stock at the discretion of the Council.

A greater control of the service to be rendered by the company is placed in the Street Railroad Commissioner in the new franchise than in the present grant to the traction company. The ordinance provides for arbitration of disputed points by a board appointed by the city, the company and the trustees of the city sinking fund. The ordinance provides for the company sharing in the cost of street repair to the extent of $35,000 a year for the first three years, $60,000 for the next five and $75,000 thereafter. The franchise does not contain a clause allowing the operating company to extend its service by means of the bus. This was stricken out of the original draft, as representatives of the street railway agreed that the company would enter the business of operating buses as a separate field.

The reduction in the rate of fare will not be met by a corresponding cut by operators of bus lines in Cincinnati, according to the men closely identified with the bus business there. The bus men say that the public is satisfied with the 10-cent fare charged by the bus lines, inasmuch as the buses cut the running time between the various terminals in some cases 40 per cent.

Charles O. Rose, who voted against the ordinance, listed eight changes, chief among them the recommendation that the service-at-cost clause be deleted and a flat fare rate set for stated periods with provision for revision.

Railway's Right to Remove Rate Sustained

From a decision rendered by the Public Service Commission of Pennsylvania on July 30 it appears that on taking over the Citizens Traction Company, Oil City and Franklin, Pa., the Fitkin interests withdrew the weekly pass, which had been installed by the Day & Zimmermann management first at Franklin and then at Oil City and on the line between those cities. The matter was brought before the commission by citizens who protested the withdrawal. The commission stated that while it would not decide as to the merit of this type of rate, it believed that the railway should have the privilege of determining the types of fare.

Hudson Tube Will Not Be Extended

Extension of the Hudson & Manhattan Railroad service to the vicinity of South Street, Newark, N. J., will not be made at this time. Service is now operated in conjunction with the Pennsylvania Railroad between lower Manhattan and Newark. A lively campaign was waged by residents and business interests of the southern part of the latter city to have the service extended. It was suggested that the extension should be made coincident with the building of the new combination passenger station for steam and electric service in Newark. Officials of the Pennsylvania Railroad, however, pointed out that sufficient trackage for the operation of electric trains to South Street was not available and that adequate yard facilities could be provided at that point only at enormous expense.

Give the Public What It Wants, Says Receiver

FORMER State Senator Francis M. Wilson, co-receiver for the Kansas City Railways, Kansas City, Mo., said recently that the company had been able to install the co-ordinated service and to obtain a franchise protecting it from foreign competition because it had won public confidence.

"Give the public what it wants and you will have a chance to make a living," he continued.

"Here's my policy. Officials should eat at their own tables and not go across the street to eat. Let them ride in their own street cars if they want to persuade the public that cars are meant to ride in. That's what I do. I've been riding back and forth to the office in street cars during the five years that I have been co-receiver, and as a result I've learned what the public wants."

Seeks Higher Fare

Georgia Railway Wants to Terminate Five-Cent Fare on North Decatur and College Park Lines

A fight to abolish the 5-cent fare on the North Decatur and College Park, Ga., suburban lines was launched recently in the General Assembly of Georgia when a bill was introduced by Representatives Barrett and McWhorter to repeal that section of the code of Georgia which prevents the Public Service Commission from taking jurisdiction over contracts between public utilities and municipalities when such contracts were made prior to the organization of the Public Service Commission. The measure is quite frankly sponsored by the Georgia Railway & Power Company.

For years the Georgia Railway & Power Company has been seeking some way to increase fares on these two lines in order that they might bear their share of the expense of operation and not be a burden upon the other lines operated in and around Atlanta. But the cities of Decatur and of College Park have absolutely refused to allow any increases, and the Supreme Court of the state has repeatedly upheld both contracts against attacks by the company. The only way in which the fare to these two suburbs can be raised beyond 5 cents is to change the state law so that the Public Service Commission will have the power to revoke these contracts and establish new fare rates.

Some days ago the company refused to pay paving assessments amounting to about $25,000. At that time the power company stated that it was losing money on the North Decatur line, where the paving was to be done, and declared that it would discontinue operation on that line and tear up the tracks, surrendering its franchise rather than pay an assessment which it could not afford. No such situation existed at College Park, but the company claims that both lines are losing money steadily under a 5-cent fare, and that their deficit is made up by the seven-cent fare charged in Atlanta.

The case for the Georgia Railway has been stated by President Preston S. Arkwright in part as follows:

> Conditions today are entirely different from the conditions prevailing when the franchises between the company and Decatur and College Park were made back in 1903.
>
> The fare in Atlanta is 7 cents. The fare to Decatur, 6½ miles away, is 5 cents, and the fare to College Park, 9 miles away, is 5 cents. The passenger on the same car traveling the shortest distance pays the highest fare. It is a rank discrimination. The street railway has a difficult time maintaining any service at all on these two lines. If the same fare prevailed on the entire system, our property would have been confiscated long ago and the service in Atlanta would have ceased. The railroad commission, independent engineers selected by the city of Atlanta, and every one else who has made a study of the situation have agreed that this unfair discrimination ought to be remedied.

Advocates of the measure claim that the 5-cent fares called for in the contracts with Decatur and College Park are discriminatory. Members of the Legislature from De Kalb County, on the other hand, have announced that they will fight the proposed changes "to the last ditch."

Third Connecticut Arbitrator to Be Selected Soon

Preparations for making a start on the arbitration of the differences between the Connecticut Company, New Haven, Conn., and its men over wages and working conditions, were made at a meeting of the state conference board of the union on July 25.

George D. Watrous, counsel for the Connecticut Company, has drawn up papers concerning the method to be followed in arbitration and these were before the State Conference Board for examination. When the terms are finally agreed to they will be signed by both sides and given to the arbitrators.

At the meeting on July 25 it was announced by the conferences board that James H. Vahey is selected to represent the men on the board of arbitration and that Joseph Berry has been selected by the Connecticut Company.

It is believed that these two members of the board will meet shortly after Aug. 10 to pick the third member.

Chicago Firm Will Make Baltimore Survey

Kelker, De Leuw & Company, Chicago, has been selected by the traffic survey commission to make a complete survey of traffic in Baltimore, Md., including the question of rerouting street cars operated by the United Railways & Electric Company. The commission made the selection at a meeting on Aug. 4. The work in Baltimore is to start on Sept. 1 and is expected to cover a period of about six months. It will cost not more than $75,000. Of this sum the city will pay $25,000, the state $15,000 and the remainder will be paid by the United Railways & Electric Company.

Clarence W. Miles, people's counsel, who is chairman of the commission making plans for the survey, has announced the appointment of Mrs. William W. Beck as assistant to the chairman. In addition to Mr. Miles, the commission includes Thomas A. Cross, representing the United; Bernard L. Crozier, chief engineer of the city, representing the municipality; Charles D. Gaither, police commissioner, representing the state, and a representative of the company that will make the survey.

Decision to make the survey grew out of a hearing held before the Maryland Public Service Commission to fix a valuation on the properties of the United Railways.

Wage Hearing in Oakland Set

The arbitration board hearing in the wage dispute between employees of the Key System Transit Company, Oakland, Cal., and the company officials has been tentatively set for Aug. 10. The arbitration board will include Commissioner Frank Colbourn, representing the employees; E. O. Edgerton, president of the East Bay Water Company, as the representative of the company. and Attorney John L. McNab of San Francisco, chosen as the neutral member of the board.

The platform men are seeking an eight-hour day, with wages of 75 cents an hour on traction lines and 80 cents an hour on interurban lines. The matter was turned over to an arbitration board after company officials and the employees failed to agree after several hearings.

The demands of the men were referred to in the ELECTRIC RAILWAY JOURNAL, issue of July 11, page 65.

Higher Fare in Prospect in St. Louis

Application for increased fares is under consideration by the United Railways, St. Louis, Mo. The exact nature and the amount of the increase has not been fully determined, but it is probable that a petition for higher rates will be filed with the Missouri Public Service Commission in the near future.

The competition of the People's Motorbus Company and the great increase in the number of private automobiles, with an additional slump in traffic due to depression in some industries, has made it imperative for the railway to obtain more revenue from passengers.

Richard J. Lockwood, assistant manager for Receiver Rolla Wells, in commenting on the fare situation in St. Louis said:

> The United Railways is barely earning sufficient to pay the interest on mortgages. It is earning virtually nothing on investment. If lines are to be extended to furnish the service needed by this growing community there will have to be an increase in fares.
>
> Petitions have been filed with the Missouri Public Service Commission for extension of the one-fare zone in various sections of St. Louis County, but we can't afford to carry such passengers for the present 7-cent fare.

In commenting on fares charged in Boston, New York, Detroit and other large cities, Mr. Lockwood said:

> Our average fare is only 4.45 cents when transfers are considered. Average fares in other large cities are very much higher. Our average cash fare is 6.9 cents.
>
> The People's Motorbus Company is taking the cream of the transportation business in St. Louis and operates on only established thoroughfares. New sections of the city are not being served. If St. Louis is to develop it must have adequate transportation facilities, and that takes money.

Mr. Hauser Would Debate Detroit Finances

W. M. HAUSER, now auditor of the Detroit Street Railway Commission, operating the municipal railway, has challenged Prof. William A. Paton of the University of Michigan to debate upon the recent report made by the D. S. R. man, purporting to show that the system has a deficit of more than $3,000,000. Mr. Hauser's challenge was in reply to an article in which Professor Paton took issue with Mr. Hauser. Mr. Hauser insisted that he did not show in his report that the system was not sound financially, but merely showed that the previous management had not had its accounting work properly done. The new accountant concedes that the system now shows a monthly surplus and is financially sound.

Jitney Operation Still Affects Atlanta's Receipts

When the jitneys were eliminated by action of the City Council at Atlanta, Ga., on March 21, 1925, it was estimated that the gross receipts of the railway department of the Georgia Railway & Power Company would increase at the rate of $240,000 a year, putting the department back upon a paying basis. According to figures for the first three months since the elimination of jitneys the increase will be not more than $125,000 this year, or less than the $126,000 wage increase granted employees of the department.

The increase in April, 1925, over April, 1924, was $19,064; in May it was $956; in June $13,072, and for the first twelve days of July $4,077.

Hears Application for Manitowoc-Sturgeon Bay Line

The Wisconsin Railroad Commission has taken under consideration the request of the Southern Wisconsin Railroad, to build an electric railway between Manitowoc and Sturgeon Bay. Charles D. Smith, president of the company, and a number of others appeared at a recent hearing of the commission in support of the application for a certificate of convenience and necessity. The application was opposed by representatives of the Green Bay & Western Railway.

The Wisconsin Supreme Court on Dec. 9, 1924, upheld the Wisconsin Railroad Commission in its decision requiring this line to obtain a certificate of convenience and necessity in spite of the fact that a charter for the line was obtained from the legislature in 1897 before the commission was in existence. President Smith maintained in his appeal from a lower court that the charter was a sufficient substitute for the certificate required.

Boston Arbitrations Under Way

Both the Boston Elevated Railway and the Eastern Massachusetts Street Railway arbitration cases, involving the wages to be paid on those roads, are now in progress. James H. Vahey represents the trainmen in both of these cases.

It is understood that later in the proceedings the Eastern Massachusetts case is to be allowed to go on to conclusion. This would necessitate the suspension of the Elevated hearings for a while. Hearings have been held in both cases, but no important rulings have been announced yet. The question has been raised in connection with the Elevated whether the public would be willing to pay an 11-cent fare to enable an increase in wages.

Previous to the start of the Boston Elevated case on July 28, the representatives of the men and the officers of the company met in conference and decided amicably all but three points at issue, the most important of which is the question of wages. The issues involved in the arbitration on the Elevated have been the subject of extended comment in these pages.

News Notes

Will Study Situation.—At the request of H. F. Dicke, vice-president of the Williamsport Passenger Railway, Williamsport, Pa., the City Council of Williamsport passed a motion to name a committee to investigate the railway situation with a view to working out some plan to improve conditions. The property has not been paying its way, according to Mr. Dicke, who stated that the annual rate of return on the appraised value "has been decreasing instead of rising, from a rate of 4.7 per cent for the year 1921 to less than 1 per cent for the first six months of 1925." He said new cars were needed, a new carhouse required and track improvements necessary.

Wage Scale Continued.—Employees of the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., and of the Brooklyn City Railroad have met with their employers and agreed to continue for another year the present wage scale. The agreement is a yearly arrangement between the two companies.

Cross-City Extension Constructed.—Officials of the Community Traction Company and Commissioner E. L. Braumlich will take part in the coming opening of the "Golden Mile" of the new Summit Street extension, which gives Toledo a 10-mile cross-city artery by joining up Broadway and Summit Street. The project cost nearly $1,500,000 and has taken a decade to push through, as it required the moving of a navigable stream and necessitated federal, state and city legislation. Summit Street for many years has been the big retail street of the city. The new street will give impetus to the construction of a new Union Station, it is believed, and also will allow expansion of retail and wholesale districts.

Railway Service Desired.—Trustees and bondholders of the Rochester & Manitou Railroad, Rochester, N. Y., which suspended operation last fall, voted to purchase the line at a recent meeting with a view to resuming operations, provided residents along the line will consent to an increased fare. The property will be sold at auction on Aug. 18. Following the abandonment of the beach side line, the New York State Railways, through its subsidiary, the Rochester Railways Coordinated Bus Lines, Inc., opened a bus line over the route at a fare considerably larger than the former railway fare. This rate advance is said to be the motive behind the insistence of beach dwellers and business men for a resumption of the trolley service.

Action Deferred on Car Purchase.—Questioning the advisability of adding to the financial burden of the Seattle Municipal Railway, Seattle, Wash., the utilities committee of the Council has indefinitely deferred action on the proposed ordinance for $2,000,000 issue of railway bonds to purchase 120 new street cars, referred to in the ELECTRIC RAILWAY JOURNAL, issue of July 1, page 77. It is pointed out that the railway has paid off a large part of its purchase price and that the city should wait a while before increasing its bonded indebtedness. E. L. Blaine, chairman of the finance committee, who is backing the movement to get new cars, urges the passage of the measure to take advantage of an arrangement with two Eastern car manufacturers who have agreed to finance the purchase on the deferred payment plan.

McKeesport Passes Reduced.—To increase the popularity of the weekly passes sold in the McKeesport-Glassport district the commercial department of the Pittsburgh Railways, Pittsburgh, Pa., on Aug. 3 voluntarily cut the price of the $1.70 pass to $1.50 and the three $1.25 passes to $1 each.

Favor "Pay as You Leave."—A vote taken over a two-week period shows that the majority of passengers favor the "pay-as-you-leave" system of collecting fares, which has been tried out on the College Avenue line of the Key System Transit Company, Oakland, Cal. Those in favor of the system totaled 2,294, while 2,018 voted against it. As a result of the favorable attitude of the public, the system will be given a further trial on the Telegraph Avenue and Shattuck Avenue lines.

Railway Man in Community Fund.—Charles D. Emmons president of the United Railways & Electric Company, Baltimore, Md., has been named one of the directors of the Community Fund of Baltimore, Inc., which will take charge of obtaining and apportioning funds of a charitable, philanthropic, educational and social nature.

Expert Needed for Transportation Problems.—The directors of the Tulsa, Okla., Chamber of Commerce have recommended to the City Commission the employment of a disinterested man or commissioner, who is familiar with the subject, to make a survey of the urban transportation problem there. Several bus and electric railway companies are giving transportation service and the situation has become somewhat confused, causing trouble not only to the electric railway but also to citizens and city authorities. It was the opinion of the directors that disagreements should be left to experts.

Fond du Lac Student Wins Scholarship.—Kent E. Wooldridge, Fond du Lac, has been recommended by Prof. J. T. Rood of the University of Wisconsin for the fellowship scholarship this year in electric railway engineering at the University of Wisconsin. Mr. Wooldridge has obtained his degree of bachelor of science and when appointed by Dean Turneaure of the College of Engineering he will work on some research problem suggested by the electric railway section of the Wisconsin Utilities Association, which sponsors the scholarship.

Essay on Making Friends.—"Current Topics," the official publication of the Illinois Power & Light Corporation and its subsidiary companies, is offering $25 to the employee who will give the best answer to the question "How May Employees Best Make Friends For the Company?" In addition there will be a $5 prize, a $3 prize and seven prizes of $1 each.

Foreign News

Indian Improvements Planned

A number of important railway improvements are planned for the Province of Bengal in and near Calcutta. An overhead electric railway is to be constructed in Calcutta from the Sealdah station of the Eastern Bengal Railway to the center of the city. This railway will be in the form of a double line on a viaduct and will be connected at Sealdah with the main electric line, to Kanchrapara and to the southern section of Diamond Harbor and Budge Budge. The Eastern Bengal Railway is also considering the electrification of the Sealdah-Kanchrapara, Sealdah-Diamond Harbor and Sallygunge-Budge Budge sections, with a possible extension into the new King George's Docks.

Russian Tramways Show Increased Traffic

During the past two years there has been an increase in the number of passengers carried on the electric tramways in Russia, according to a recent article in the *Revue Universelle des Transports*. At a recent convention of these lines, held in Petrograd, it was estimated that during the next year the lines should add 1,000 motor cars, 10,000 tons of rail and 2,500 new pieces of special trackwork. Just how these purchases are to be financed, however, is another question. It is estimated that it will cost between 20,000,000 and 25,000,000 rubles, of which the operating systems are able to furnish only 30 per cent.

Carmen Strike in Shanghai.—Owing to many kidnappings of trolley crews the street car service in Shanghai, China, is run under armed guards and stations located on the border of the foreign settlement are not served in order to keep the crews within the safety zone. Only a limited service is run, as strike agitators swoop on the cars, carrying off the men, which has resulted in terrorizing 500 carmen into joining the strike.

Cheap Day Trips Announced.—The London underground railway companies and the London General Omnibus Company have instituted cheap day return tickets from certain stations on the railways to King's Langloy and Hemel Hempstead in the country north of London. The through tickets are issued on Saturdays, Sundays and bank holidays.

Trolley Buses Adopted in Chesterfield.—Tramway equipment in Chesterfield, England, is to be converted into railless electric traction. The town council has accepted a bid for £27,548 to cover the cost of conversion and the purchase of fourteen trolley buses.

Recent Bus Developments

Bus Policy of New Haven Railroad Defined

The New York, New Haven & Hartford Railroad outlined its highway motor coach policy before the Massachusetts Department of Public Utilities on Aug. 3 in connection with its petition for permission to operate bus lines between Providence and Newport, and Providence and Fall River.

The case was argued by Arthur P. Russell, vice-president of the company. His plan was opposed by Day Baker of the Motor Coach & Bus Association and by Fred A. Cummings of the Eastern Massachusetts Street Railway. These three interests—the present bus lines, the street railway and the railroad—are deadlocked over the proposition.

The railroad wants the privilege of operating buses in the highway because it is losing money by maintaining steam trains or gasoline rail coaches, charging its losses to unfair competition from the independent bus lines. The street railway opposes this on the ground that it invades the rights of the trolley lines, and the independent bus lines oppose it on almost identical grounds, contending that 40 per cent of the passengers on the present motor coaches would not use the New Haven trains anyway on account of the poor service they give.

A statement of the New Haven Railroad policy is as follows:

> Where the operation of the motor coach thus becomes desirable or necessary, it will, so far as practicable, be operated:
>
> (a) As an extension of and in connection with rail service, making connections with important trains that may be desirable in the public interest.
>
> (b) Parallel with and as feeders to rail service, thus enabling the rail service to be scheduled more rapidly and in consequence to become more attractive to the public.
>
> (c) For the filling of rail schedule intermissions where highway operation is justified but where passenger traffic is too light or freight switching too heavy to justify gas rail cars and where through the operation of the highway service these gaps in the rail schedule can be filled, and
>
> (d) For a highway service, connecting with the rail service so far as practicable, between certain populous centers where the rails handle passenger travel, but between which the construction of new or the improvement in old highways has now created a situation in which the operation of the motor coach offers the only means of regaining former revenues now lost, and of more directly combining the two forms of transportation.

Garage Facilities for Railway and Bus Patrons

Special garage service has been established by the Northern Ohio Traction & Light Company, Akron, Ohio, for patrons of its interurban lines. The company owns a garage adjoining its trainsheds in Akron and has put into effect a plan under which motorists may drive to the Akron terminal, buy a ticket to any point along its interurban lines and for a small fee have their autos cared for in the garage. A uniformed attendant meets the patron, takes the garage check which is obtained at the time a ticket is purchased and sends the auto to the garage. On his return trip the patron surrenders his garage check to the attendant and his auto is brought to the front door of the terminal for him.

Although the plant was put into effect only recently it is proving popular and is undoubtedly developing new business. It is particularly pleasing to Akronites going to Cleveland. Traffic congestion in that city is intense and the parking restrictions are so severe that autoists find it more convenient to drive their cars to the Akron terminal and take the interurban or the bus to Cleveland.

Rival Groups After Buffalo Bus Rights

Two rival groups of bankers and bus interests will clash before the New York State Public Service Commission in September when the American National Omnibus Corporation, New York, and the Gray Motor Corporation, Detroit, apply for a certificate of convenience and necessity to operate a 5-cent bus service over 71.5 miles of streets in the city of Buffalo.

The application will be opposed by the International Railway, Mitten Management, Inc., and New York bankers who have large investments in traction and bus facilities in Buffalo. They contend that the operation of a city-wide bus service in Buffalo by the new corporation may lead to the utter collapse of their system. The fare on the Buffalo railway is now 8 cents and the bus fare is 10 cents.

Ernest M. Howe, Detroit, who has been negotiating with the City Council of Buffalo on final details of the franchise, informs the City Council his financial backers stand ready to make an investment of $1,500,000 in buses in Buffalo.

With a 5-cent fare and free transfers to connecting bus lines of its own operation, the Gray Motor Corporation believes it will be able to handle at least 70 per cent of the normal number of car riders in the city. It says an exhaustive investigation of operating costs made by transportation engineers shows the Tilling-Stevens gas-electric type of buses run with one-man can be operated at a profit in the United States.

The company offered to file a bond of $50,000 with the municipal authorities. Backers of the new bus line plan to set aside 10 per cent a year for depreciation so that the entire investment can be amortized in a ten-year period, Mr. Howe told the City Council. He said:

> My proposal for a 5-cent fare is based upon present day costs. As long as existing costs are in effect, the buses will operate at a profit with a 5-cent fare. I assume that if labor costs and gasoline should materially increase in price in the next few years the Council will allow an increase in fare based upon the increased cost of operation. Such a clause must be embodied in the terms of the contract with the city.

People First, Says Mr. Meade, St. Louis Operator

The Board of Public Service of St. Louis, Mo., voted unanimously on July 28 to award the St. Louis Bus Company a permit to operate buses on Loughborough and Morganford Road from Broadway to Gravois Avenue. The line will connect with the Broadway, Bellefontaine and Cherokee car lines of the United Railways and also with the Morganford Road bus line of the St. Louis Bus Company, which interchanges transfers with the railway.

At the hearing on the permit Richard Meade, president and general manager of the People's Motorbus Company, a competing bus company, advocated the granting of a permit to the St. Louis Bus Company to operate on Loughborough Avenue and Morganford Road, but suggested that the permit be amended so as to loop the buses around Gravois Avenue, Kingshighway Southwest and Delor Avenue.

The application of the St. Louis Bus Company asked permission to loop around Kingshighway proper. The People's Motorbus Company holding a prior permit to use Kingshighway for buses protested. Mr. Meade said he regarded the new line on Loughborough Avenue and Morganford Road as a good thing as it serves a territory now without adequate transportation.

Independents Bought by Public Service

Recent purchase of fourteen additional independent buses for its Essex division was announced recently by the Public Service Transportation Company, subsidiary of the Public Service Railway, Newark, N. J. Four of the buses have been running on the Clinton Avenue line, five on the Market Street, four on the Springfield Avenue and one on the Summer Avenue line, all in Newark. Out of approximately 400 buses in service in this territory about 90 are owned by independent operators.

Matthew R. Boylan, vice-president in charge of operations of the company, said that in order to bring about a proper system of co-ordination of trolleys and buses in the Essex division, the Public Service Transportation Company was prepared to purchase any or all of the buses now owned and run by independent interests, but only if the prices asked were reasonable.

New Haven's First Connecticut Application Allowed

The first application of the New England Transportation Company, organized by the New York, New Haven & Hartford Railroad to operate buses in Connecticut, was granted on Aug. by the Public Utilities Commission.

The company will run buses between Ridgefield and Branchville as a substitute for train service, which will be discontinued by the New Haven road because of insufficient revenue. The application was the first of a series expected to be submitted as a result of the road's intention to substitute buses for service by steam.

More Kansas City Buses Aug. 21

Under the provisions of the franchise granted to the Kansas City Railways for auxiliary bus services the second route of the new service is to be in operation on Aug. 21.

Announcement to this effect was made by Francis M. Wilson, one of the receivers, upon his return to Kansas City on Aug. 1 from St. Louis, where the steel bodies for the buses are being manufactured by the American Car Company and the St. Louis Car Company, according to the special designs of the railway company's engineers. Mr. Wilson is confident five or six 29-passenger buses on Mack chassis will arrive in Kansas City on Aug. 17 or 18.

It is planned to put the new Mack buses into service on the Northeast route, from Fifteenth Street and Winchester Avenue to the Montgomery Ward & Company's plant, and on the South Troost Avenue route from 55th Street to 63d Street.

Mr. Wilson said that the progress being made at the plants of the car companies convinced him that all single-deck buses will be delivered by the middle of September, and that the remainder, including double-deck buses and parlor cars, will be ready the latter part of October.

Bus Operation by Key System Reviewed—More Routes Coming

Bus service between Oakland and Berkeley is to be established by the Key System Transit Company. Contracts have been signed for four new high-speed de luxe motor coaches. The bodies will be custom built and the appointments will be of the latest and most comfortable type. Each will have a capacity of 29 passengers. The engines will be of the six-cylinder Pierce Arrow type.

It is planned to operate these buses as an express service between the two California cities. This is in accordance with a recommendation made by engineers in the course of a recent rapid transit survey of the East Bay cities.

In response to a general demand for faster service between Berkeley and Oakland the experts recommended that buses be run and also that a system of skip stops be started on the trolleys lines.

It is planned to run these buses on a 6-cent fare for a while, giving transfers as well. In this connection President Miller said:

> The Key system will furnish the kind of transportation that each community desires wherever physically and financially possible, without regard to whether such transportation will pay for itself at time of installation, provided the system as a whole makes proper earnings.

As a matter of fact, buses are all being run at a loss in Oakland and the East Bay just at present. Within a year eleven lines have been established.

Most of the equipment was purchased in 1924-1925 except four White buses, and maintenance costs have been steadily mounting. A summary of operation is given in an accompany table. These data were compiled early in June for study by the Oakland Chamber of Commerce, which has appointed a committee to digest the survey report of the experts that made the recent Oakland traffic survey.

All buses in Oakland and the East Bay are being operated on a 6-cent fare with full transfer privileges. They are merely feeders to existing trunk lines. It is noticeable that the bus lines most recently established, which have the smallest overhead and maintenance costs, are being run at the smallest losses.

Another factor is distance. The buses that make the longest hauls show the greatest losses. The latest statistics show that in the whole East Bay bus passengers are being carried at a loss of 0.0684 cent per passenger. The overhead per bus-mile is 0.0343 cent and this is constantly increasing as new lines are added.

Within a year 1,135,049 passengers have been carried at an average cost per bus-mile of 0.2351 cent and a loss per bus-mile of 0.1560 cent. Buses on the eleven lines have traveled 592,222 miles since they were started.

Massachusetts Regulation Procedure Under Fire

The Motor Bus & Coach Association has been defeated, at least temporarily, in its plans to overthrow the new Massachusetts bus control law. It secured signatures sufficient to have the matter go on the ballot for a referendum vote at the next election, but some of the papers were lost or stolen on the day for filing them. Consequently there can be no referendum. Then the bus interests asked Governor Fuller to call a special session of the Massachusetts Legislature. They contend that unless the new law is repealed the railroads in the state will obtain a complete monopoly of the bus business and that $15,000,000 of buses now operated by private concerns will have to be junked.

F. A. Deister, president of the American Coach Company, and Clarence A. Barnes and Roland H. Choate of the same company were the leaders in the move for a special session of the Legislature. Governor Fuller announces, however, that there is not an emergency situation and he will not call a special session.

The law to which reference is made provides that prospective operators of buses must not only obtain local consents to operate in the various towns through which they intend to run, but must secure the approval of the State Department of Public Utilities.

Terminal Plans Being Perfected.—The Springfield Bus Terminal Company, Inc., Springfield, Mass., formed by men identified with the Hartford & Springfield Street Railway, was incorporated late in July under the laws of Connecticut. The authorized capital stock is $65,000 preferred and 350 shares of common stock of no par value. Incorporators are Joseph T. Hambleton, general manager of the Hartford & Springfield; Harrison B. Freeman, receiver, and Kate W. Terry.

Trucks Handle Delivery Business.—Two new trucks were put into service recently by the United Traction System to handle store door delivery trucking of freight between Manhattan and Salina, Kan. A fleet of five trucks is now operating between Salina and Manhattan.

Certificate Granted and Denied.—The Indiana Public Service Commission authorized on Aug. 1 the operation of twelve additional bus lines. One certificate was granted to the Terre Haute, Indianapolis & Eastern Traction Company to operate bus lines within the city of Terre Haute. The application of that company to operate between Terre Haute and Harmony was refused by the commission on the grounds that there was no need for the service.

Services Extended.—Feeder bus service from the end of the West Washington Street line, a distance of 1.6 miles, has been started by the Indianapolis Street Railway, Indianapolis, Ind. Buses will operate every ten minutes. The line is part of the series of feeders contemplated by the company in meeting the demand for extension of transportation facilities.

Permit for Line Granted.—Permission has been granted the Utah-Idaho Central Railroad by the Public Utilities Commission of Utah to operate a bus line between Ogden and Logan, Utah, via Brigham City and Mantua for passengers, baggage and express purposes.

SUMMARY OF BUS OPERATION BY KEY SYSTEM TRANSIT COMPANY BY LINES*

	Bus-Miles	Receipts	Drivers' Wages	Other Direct Costs	State Gross Receipts Tax	Overhead	Interest on Investment	Total Costs	Net Loss	Receipts per Bus-Mile	Cost per Bus-Mile	Loss per Bus-Mile	Passengers Carried	Loss per Passenger
Montclair line	111,732	$7,388	$7,085	$14,201	$387	$3,823	$1,337	$26,835	$19,446	$0.0661	$0.2402	$0.1741	190,272	$0.1022
Mills College line	34,058	2,854	2,656	4,328	149	1,165	437	8,709	5,854	.0838	.2557	.1719	96,259	.0682
Sixth Street (Berk.)	75,509	4,308	4,326	9,597	226	2,361	906	17,687	13,379	.0571	.2342	.1771	122,648	.1025
Haight Street line	43,462	3,531	3,148	5,524	184	1,487	521	10,865	7,334	.0813	.2500	.1687	125,110	.0586
Fernside Boulevard line	42,802	1,495	3,169	5,440	78	1,464	513	10,666	9,170	.0349	.2492	.2143	59,905	.1531
Seminary Avenue line	107,483	9,172	4,603	13,661	481	3,678	1,289	23,714	14,541	.0853	.2206	.1353	264,466	.0598
35th Avenue line	44,802	7,807	2,299	5,694	409	1,533	537	10,474	2,666	.1742	.2338	.0596	204,654	.0130
Foothill Boulevard line	102,589	6,791	4,606	13,039	356	3,510	1,231	22,743	14,951	.0604	.2217	.1613	202,487	.0738
Richmond Ferry line	11,240	2,136	811	1,428	112	384	134	2,871	735	.1900	.2554	.0654	36,241	.0203
Excelsior Boulevard line	11,949	901	882	1,518	47	408	143	3,000	2,099	.0754	.2511	.1757	22,182	.0946
Broadway line	6,596	455	435	864	23	225	79	1,628	1,172	.0690	.2469	.1779	10,825	.1083
	592,222	$46.843	$34,023	$75,297	$2,458	$20,043	$7,131	$139,196	$91,352	$0.0791	$0.2351	$0.1560	1,335,049	$0.0684
Rate per bus-mile (cents)		0.0791	0.0575	0.1271	0.0042	0.0343	0.0120	0.2351	0.1560					

* Cents eliminated on principal items

Financial and Corporate

San Francisco Negotiations Not Terminated

Mason B. Starring, president of the Market Street Railway, San Francisco, Cal., states that the negotiations between the company and the city of San Francisco for the purchase of the Market Street Railway's property, have not been abandoned and that his policy is that the city may buy the railway at a valuation "which recognizes the theory of a willing buyer and a willing seller."

Otherwise he expects the city to say:

San Francisco has changed its mind; it does not wish to buy the Market Street Railway.

Mr. Starring says he will be content either way, but declares that he cannot very well formulate a policy which will enable him to be of real use to the city unless he knows where he stands.

Concretely stated, the policy of the company is to sell to the city if the city desires to purchase at a fair price; if the city does not so desire, its policy is to add to and improve its properties, give the best possible service under conditions as they exist and continue as though no city purchase question has been under consideration.

Mr. Starring added:

Seven years have elapsed since the second day of March, 1918, when an agreement was signed by the company's president and a representative of the city, contemplating a sale of the company's property to the city. I submit that in all fairness to citizens and stockholders this inchoate situation should be terminated.

The company points out that misunderstanding exists concerning length of franchises under which the lines will continue to operate. It declares that very important franchises extend beyond 1940 and that some covering considerable mileage extend to 1952 and 1965. Those which do not extend into 1930 cover less than 20 per cent of the total mileage, the company states.

Extra Pay to Pittsburgh Receivers

An additional compensation of $58,382 each for their services as receivers of the Pittsburgh Railways, Pittsburgh, Pa., was recently granted by Judge W. H. S. Thomson, in the United States District Court, to Charles A. Fagan and S. L. Tone. In permitting the additional compensation the court ruled out Special Master Henry G. Wasson, who, in a report, did not favor further allowances to the receivers. The other receiver, W. D. George, did not file exceptions to the report of the special master and did not participate in the additional compensation.

The receivership of the Pittsburgh Railways terminated on Jan. 31, 1924. In the opinion Judge Thomson reviewed the work of the receivers and cited that they, under the most trying circumstances, kept together and operated a system surrounded with infinite complications, made large improvements, met the demands of the public for more efficient transportation, reasonably satisfied the demands of a multitude of clamorous creditors and increased the annual revenue and financial status of the company to a point where it was insisted by the owners and a majority of those in interest that the receivership should be justly and properly terminated.

With the $58,382 additional added to the $30,000 a year received annually as salaries for a period of nearly six years of the receivership, Mr. Fagan and Mr. Tone will each have received approximately $238,000 for their services and Mr. George between $170,000 and $180,000.

B.-M. T. Employees Receive Stock Certificates

Employees of the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., received on July 31 certificates for the shares of B.-M. T. preferred stock purchased by them during the past year on the deferred-payment plan. The employees have actually paid out of their wages only $60.50 per share for the stock, which is now selling in the open market above $80 per share, so that under the terms of the company's offer of a year ago they have been enabled to purchase the preferred stock at approximately $20 a share below its present market price. With each certificate is a letter from W. S. Menden, president of the company, extending "hearty congratulations upon becoming one of the employee-owners of the B.-M. T. System."

The offer of B.-M. T. preferred stock was made on July 16, 1924, and within ten days more than 10,000 employees subscribed for more than 20,000 shares. The offer was limited to 15,000 shares, so that it was necessary to restrict the total number of shares allotted to any employee to three shares. Arrangements were made so that employees could pay for the stock by having $1.25 per week per share deducted from their wages. The final payment of 48 cents per share was deducted for the week ended July 9 and the stock certificates were immediately prepared for delivery to the employee-stockholders. Extended reference to the success of the campaign was made in the ELECTRIC RAILWAY JOURNAL for July 25, page 144.

St. Louis Earnings Off

Net Decreased $779,869—Falling Off in Passengers Carried Corresponds with Number Handled by Bus—Decrease in Passengers Especially Noticeable on Saturdays, Sundays and Holidays

ROLLA WELLS, receiver United Railways, St. Louis, Mo., reports net income of $29,876 for the system for the year ended Dec. 31, 1924, compared with $809,745 for the previous year. The total number of passengers carried in 1924 was 428,778,171 compared with 448,014,974 in 1923. The number of revenue passengers decreased to 279,222,520 in 1924 from 292,671,781 in 1923. The balance sheet of the company shows among the assets $5,561,150 of Liberty bonds, certificates of indebtedness and treasury notes.

There was no change in the basic 7-cent rate of fare in 1924, but on March 3, in accordance with orders of the Public Service Commission, it became necessary to put in a single fare zone between Fourth Street, St. Louis, and Clayton Court House, thus reducing the fare for that trip from 14 cents to 7 cents. Wages and working conditions of trainmen remained unchanged in 1924, but the increase in wages under the agreement of Aug. 1, 1923, materially affected operating expenses for 1924 compared with 1923. The total mileage of single track is 463.17.

Mr. Wells says that operations in the congested districts have increased in difficulty. Added to the difficulties caused by automobiles continuously parked along all streets the general increase in automobile traffic and the large increase in the number of buses on the streets of heaviest traffic have presented problems difficult to overcome.

As in the past year, the Saturday, Sunday and holiday traffic showed in 1924 a much greater falling off than that of the remaining days of the week.

The average number of cars operated daily, including Sundays and holidays, during 1924 was 1,202, as compared with 1,252 in 1923, 1,201 in 1922, and 1,165 in 1921, but the maximum number operated in 1924 was 1,508 as compared with 1,453 in 1923. During the latter part of the year fifteen street collectors were placed at different points in the congested district to collect fares and enable passengers to load at both ends of cars.

On the matter of power saving, Mr. Wells says:

The result of equipping passenger cars with Economy watt-hour meters in 1923 has continued to be gratifying. As shown in the report for 1923, the total cost of

PASSENGER REVENUE IN ST. LOUIS

	Days	1924	Days	1923	Decrease	Per Cent Decrease
Total	...	$19,247,650	...	$20,178,962	$931,312	4.62
Average day	366	52,589	365	55,284	2,695	4.88
Average weekday	256	55,053	255	57,326	2,272	3.97
Average Saturday	51	57,146	52	61,081	3,934	6.44
Average Sunday	52	38,105	52	41,251	3,145	7 62
Average holiday*	7	36,859	6	39,908	3,049	7.64

* Note—New Year's Day, Decoration Day, Independence Day (year 1924, 4th and 5th), Labor Day Thanksgiving Day, Christmas.

COMPARATIVE INCOME AND EXPENSE STATEMENT OF THE UNITED RAILWAYS, ST. LOUIS

	1924	1923
Revenue from transportation	$19,288,743	$20,220,765
Revenue from other railway operations	226,531	232,679
Gross operating revenue	$19,515,275	$20,453,445
Current operating expense and depreciation	$15,093,195	$15,123,183
Taxes	1,772,134	1,832,602
Total operating expense depreciation and taxes	$16,865,329	$16,955,785
Income from operation	$2,649,945	$3,497,659
Non-operating income	287,870	225,700
Gross income	$2,937,816	$3,723,359
Interest and miscellaneous charges	2,907,939	2,913,614
Net income for the year	$29,876	$809,745

installation (including equipment for testing and maintenance) was $105,944. Compared with the original blind figures, the saving in power consumption per car-mile during 1924 measured at meters on the cars was 8.25 per cent and at the power house primary switchboards 4.89 per cent. On the latter basis the gross saving for 1924 in the cost of power was approximately $99,238. Deducting depreciation of 10 per cent and an interest charge of 7 per cent on the equipment, and all costs for operating meters, maintenance, wages for instructors, inspectors, and clerks, the net saving for the year was approximately $66,604.

A series of charts and statistical statements has been prepared by the chief clerk of the power saving department, showing additional savings in the cost of maintaining electrical equipment, in cost of replacing brake shoes, etc., both per car and per thousand car-miles, as a result of greater intelligence and care in handling brakes.

According to Mr. Wells, various analyses have been made of the effect of bus competition on the United Railways earnings. He says the result indicates that fully 75 per cent of the decrease in earnings was due directly to that competition—the remainder of the loss being due partly to increased automobile travel and partly to business depression.

Mr. Wells points out that the decrease of approximately 13,500,000 passengers on the United Railways corresponds with a total of nearly that number of passengers carried by the Peoples Motor Bus Company. He says that of the total paying passengers carried by both street cars and buses in 1924, the buses carried somewhat less than 4½ per cent, but those passengers were taken where the effect on the United Railways was most serious.

Mr. Wells says the new safety department, organized under E. K. Eastham, safety director, late in 1923, has functioned very effectively throughout the year. The number of accidents of all kinds reported during 1924 showed a decrease of 13.9 per cent from the number reported in 1923. The number of claims of all kinds filed with the claim department in 1924 showed a decrease of 18.18 per cent from the number filed in 1923. Great impetus has been given to this work of cutting down accidents and improving the efficiency of the service in many incidental directions. Still greater results are looked forward to for 1925.

Late in the year 1924 the department of valuation and research was organized to collect data on the speeds of operation on the different lines of the company on their routes into and away from the congested district. This information is being supplied to the organization now engaged in the rapid transit survey of the city of St. Louis. The department has also collected a vast amount of travel statistics for the use of the rapid transit survey.

There is a separate report of operations of the Missouri Electric Railroad. This system includes 23.5 miles of single track. The gross income was $164,746 for the year ended Dec. 31, 1924, compared with $229,169 for the previous year. There was a loss of $37,940 for the year 1924 compared with a surplus of $7,179 for the previous year.

$1,000,000 Gain in Net in Brooklyn

The Brooklyn-Manhattan Transit System and affiliated companies report earnings as follows for the years ended June 30:

	1925	1924
Operating revenues	$43,312,417	$40,072,326
Operating expenses	28,426,390	26,499,408
Net revenue	$14,886,026	$13,572,917
Taxes on operating properties	3,068,461	2,738,946
Operating income	$11,817,564	$10,833,970
Net non-operating income	1,084,581	950,455
Gross income	$12,902,146	$11,784,425
Total income deductions	7,814,221	7,762,360
Net income	$5,087,925	$4,022,065

Foreclosure Suits Consolidated

Suit brought recently at Muncie, Ind., to foreclose a mortgage on holdings of the Muncie, Hartford City & Fort Wayne Railway by the Guardian Trust Company, Cleveland, as trustee, has been transferred to the Circuit Court at Anderson, Ind., and consolidated with the receivership case now pending against the Union Traction Company. In addition to the Muncie, Hartford City & Fort Wayne Railway Company under date of Dec. 31, 1904, and remaining unpaid. The bonds are not due until 1934. Interest of $22,900 due on Jan. 1, 1925, has not been paid, the complaint alleges, and since then another payment became due on July 1. The lines were leased to the Indiana Union Traction Company, now the Union Traction Company of Indiana, on June 27, 1906.

Brunswick Rails Sold

J. H. Reynolds, Gainesville, Ga., has purchased all the rail and wire of the Brunswick & Interurban Railway, formerly the City & Suburban Railway, Brunswick, Ga. The sale includes everything except the real estate owned by the company. He plans to salvage the old tracks, but will junk all of the other material.

The Brunswick Railway was placed in operation in 1909. For the first few years the line was operated at a profit. Later when receipts declined a receiver was appointed and the line was about to be discontinued when the Young Men's Club organized a new company to take over operation. However, operation was not successful. As a final resort a special city election was held, but the required number of votes was not polled and operations were discontinued. It was intended that under a favorable vote the city would enter into a contract with the Brunswick & Interurban Railway to lease the property and to operate the line for a period of years with the privilege of buying the railway.

Declaration of Abandonment Approved

The Public Service Commission of New York on Aug. 6 approved the declaration of abandonment by the United Traction Company of the Oakwood Avenue line in Troy running from Hoosick and Tenth Streets through the latter street and Oakwood Avenue to the end of the line.

The order shall not take effect "unless and until the United Traction Company shall file with the commission a stipulation and agreement to the effect that, by and with the consent of the city of Troy and of the commission, transportation will be furnished to the territory now served by the portion of the route to be abandoned by means of a bus line or lines, with the same rate of fare and transfer privileges as may be in force on the street railway, and with an interval of service not greater than that which is now maintained on the Oakwood Avenue line."

The Capitol District Transportation Company, Inc., now has a petition pending before the Troy Common Council for the right to run buses over the route covered by the Oakwood Avenue line.

The city claimed the commission has no jurisdiction over the proposed abandonment on account of various franchises and ordinances and that the trolley company is merely seeking to be relieved of the cost of paving in Tenth Street and Oakwood Avenue,

TRAFFIC STATISTICS OF THE UNITED RAILWAYS, ST. LOUIS

	1924	1923	1922	1921	1920	1919	1918	1917	1916
Revenue passengers	279,222,520	292,671,781	286,076,475	282,447,190	287,405,837	263,221,899	245,876,910	262,564,865	253,046,586
Transfer passengers	149,555,651	155,343,193	152,261,868	150,562,354	154,464,735	145,788,430	131,108,817	140,735,831	136,065,566
Total passengers	428,778,171	448,014,974	438,338,343	433,009,544	441,870,572	409,010,329	376,985,727	403,300,696	389,112,152
Percentage of revenue passengers using transfers	53.56	53.08	53.22	53.31	53.74	55.39	53.32	53.60	53.77
Average fare per passenger (including transfers)	4.49c	4.50c.	4.49c.	4.49c.	4.55c.	4.03c.	3.59c.	3.23c.	3.22c.
Average fare per revenue passenger	6.89c	6.89c.	6.89c.	6.89c.	7.00c.	6.25c.	5.50c.	4.95c.	4.95c.
Passenger car-miles	43,911,064	45,652,714	44,229,300	44,229,210	45,291,525	43,752,684	42,380,108	43,996,905	43,568,964
Revenue passengers per car-mile	6.36	6.41	6.47	6.39	6.35	6.02	5.80	5.97	5.81
Total passengers per car-mile	9.76	9.81	9.91	9.79	9.76	9.35	8.90	9.17	8.93

that the company has failed to prove that the Oakwood Avenue line is no longer necessary for the convenience of the public, that the financial condition of the company is not material, and that the Oakwood Avenue trolley line is absolutely necessary for the convenience of the public.

The commission holds that it has jurisdiction.

Line in Suburban New York to Quit

The Westchester Street Railroad, White Plains, N. Y., which was acquired by the New York, New Haven & Hartford Railroad in 1909, is to be sold at auction about Oct. 15.

Leverett S. Miller, receiver of the railway, recently announced plans for a county-wide bus system, backed by financial interests controlling the New York, Westchester & Boston, the Westchester Street Railroad and the New York & Stamford line.

The Westchester Street Railroad has been operating at a 10-cent fare through White Plains, Tarrytown, Scarsdale, Greenburgh, Silver Lake Park and part of Harrison. Efforts will be made to keep the line in operation until next June. Receiver Miller is expected to apply for bus franchises next month.

Insulls Have Option on Illinois Road

The Chicago & Illinois Midland Railway, a coal carrier controlled by the Insull interests of Chicago, has concluded a preliminary agreement for the purchase of the line of the bankrupt Chicago, Peoria & St. Louis Railway between Springfield and Pekin, Ill. The contract is for the section between Springfield & Pekin, with certain conditions to be worked out. These include such things as approval of the Illinois Commerce Commission, delivery of a right-of-way and obtaining certain connecting trackage. All this must be cleaned up within six months. Reference to this impending purchase has been made before in the ELECTRIC RAILWAY JOURNAL.

Traffic Still on the Decrease in Winnipeg

The gross earnings of the Winnipeg Electric Company, Winnipeg, Man., for the year 1924 show a decrease of $152,083 from the 1923 earnings, while the operating expenses show a decrease of $86,395. Miscellaneous income is greater by $11,480. The comparatively dull business conditions referred to in the reports of previous years continued throughout 1924 and the reduction in gross earnings is due to this cause. After setting aside out of the net income of $820,359 a total of $366,050 for depreciation and providing for the payment of $279,691, representing the amount which was necessary to complete payments called for by the contract with the Manitoba Power Company, Limited, which is controlled by the Winnipeg Electric Company, the balance remaining and carried forward to surplus account is $174,618, bringing the balance in that account to $2,691,131. After the payment of the regular dividend on the preferred stock and a dividend of 1 per cent on the common stock the balance in surplus account is $2,371,131.

The street railway has been experiencing a decrease in traffic since 1920, in which year it established a record by carrying 65,240,000 revenue passengers, as contrasted with 55,078,000 during the past year. These conditions arise from the general business depression, which directly affects transportation service; the unusually open winter of 1923-24 and the increased number of automobiles in use, of which 18,409 were licensed in Greater Winnipeg in 1924 as contrasted with an estimated total of 11,783 in 1920.

Penn Central Sold to Emanuel Interests

The Penn Central Light & Power Company, operating in Altoona, Pa., and vicinity and owners of the Lewistown & Reedsville Electric Railway, Lewistown, Pa., will become a part of the United Lighting Company, which is controlled by the Albert Emanuel interests, New York. For the last twelve years this company has been under the management of Day & Zimmermann, Inc., Philadelphia. This company is reported to have controlled the majority of the common stock for several years.

Announcement of an agreement for the sale of the Penn Central securities was made by officers of Day & Zimmermann, Inc., following a meeting of the directors held in Philadelphia on Aug. 6. A large block of no par value preference stock is now in the hands of the public, principally customers and employees, and under the terms holders are entitled to receive $70 per share or an even exchange of a new preferred stock which is proposed for issue by the new interests.

June Traffic Improves

Electric railway traffic in June showed a slight increase over June, 1924, according to the figures compiled by the American Electric Railway Association for the United States Department of Commerce. The number of revenue passengers, including bus passengers, reported by 213 companies was as follows:

	Month of June 1925	Month of June 1924	Per Cent Increase
Revenue passengers	777,192,648	772,363,530	0.63

Detroit United Defaults Interest

The Security Trust Company, Detroit, Mich., announced on Aug. 3, in behalf of the receivers of the Detroit United Railway, that to conserve operating funds the interest due on Aug. 1 on four bond issues had been defaulted.

Had the stockholders' reorganization plan in June succeeded, this step would be unnecessary, A. B. Hoffman, vice-president of the Security Trust Company, stated. On July 1 interest on three other bond issues was defaulted for a similar reason.

Lake Shore Surplus Lower.—The gross earnings of the Lake Shore Electric Railway System, Cleveland, Ohio, for the period from January to May, inclusive were $1,305,348, against $1,329,684 for a similar period in 1924. Operating expenses and taxes decreased from $1,088,699 to $1,071,449. After allowing for interest, there was a surplus of $47,833, against $64,489 for a similar period in 1924.

Results in Buffalo Better.—For the six-month period ended June 30, 1925, the International Railway, Buffalo, N. Y., reported a deficit of $174,822 against a deficit of $357,703 for the similar period in 1924. The operating revenue was $5,169,799 against $5,134,538 for the 1924 period.

Gross Income Lower.—The San José Railroads, operating in San José, reports to the California Railroad Commission its 1924 operating revenue as $390,640, compared with $419,749 for 1923. The operating expenses, excluding taxes, for 1924 are reported as $334,679 and for 1923 at $345,374, leaving net operating revenue of $55,960 for 1924 and $74,375 for 1923. During 1924 taxes charged to operation were $55,960 and for 1923 $28,849. Deducting the taxes leaves operating income of $29,333 for 1924 and $45,525 for 1923. Adding to the operating income the non-operating income of the company results in a gross corporate income of $31,365 for 1924 and $47,735 for 1923, available for interest, amortization, non-operating expenses, etc.

2,501,969 Available for Charges.—The Los Angeles Railway, Los Angeles, Cal., reports to the Railroad Commission its 1924 operating revenue as $13,097,425, compared with $12,645,435 for 1923. The operating expenses, excluding taxes, for 1924 are reported as $9,854,447 and for 1923 as $8,915,490, leaving net operating revenue of $3,242,978 for 1924 and $3,729,945 for 1923. During 1924 taxes charged to operation were $868,054, and for 1923 $832,726. Deducting the taxes leaves operating income of $2,374,924 for 1924 and $2,897,219 for 1923. Adding to the operating income the non-operating income of the company results in a gross corporate income of $2,501,969 for 1924 and $3,011,038 for 1923, available for interest, amortization of debt discount, other fixed charges, etc.

Taxes Wiped Out.—Taxes totaling $14,750, standing on the books of the borough collector against the defunct Northampton, Easton & Washington Traction Company, Washington, N. J., succeeded at foreclosure proceedings by the New Jersey Interurban Company, Easton, Pa., have been rescinded by the Common Council of Washington. The new owners of the company asked for the elimination of the taxes.

City Withdraws Objection to Abandonment.—Because there were no protests from citizens against the Long Island Electric Railway's abandoning 1½ miles of its line in Queens, N. Y., from the Long Island Railroad crossing to Grant and Liberty Avenues, the hearing was closed on the application of the company. The petition was filed to legalize the company's action in abandoning this part last winter when operation had become unprofitable.

Surplus for April Quarter.—The New York State Railways, Rochester Lines, showed a surplus of $13,347 for operations during the quarter ended April 30, according to the report of Charles R. Barnes, City Commissioner of Railways. This report covers bus and trackless lines within the city, as well as the trolley system. Surplus from electric railway operations was $18,312, with a deficit of $4,964 for bus operations, divided as follows: Trackless trolley line, $3,069, and Dewey Avenue bus line, $1,895. The total number of passengers carried on all lines was 25,330,383, of which the trolleys carried 24,921,738; the buses, 73,297, and the trackless line, 335,348.

Incline Railway Sold.—The Mount Manitou Park & Incline Railway at Manitou, Col., was sold at sheriff's sale recently for $1,644 to Canton O'Donnell of Denver. It is understood that Mr. O'Donnell represents the bondholders. The Incline has been inoperative for several years, it having been declared bankrupt. The liabilities are about $125,575 and include a principal of $100,000 in bonds, $24,000 in interest and some minor expenses. The property bid in includes twenty city lots in Manitou, a 40-ft. right-of-way up the mountainside, a dance pavilion at the summit and the track and machinery necessary to operate, along with other equipment. Approval by the court is necessary to complete the sale.

Deficit of $345,508.—For the twelve-month period ended June 30, 1925, the Interborough Rapid Transit Company, New York, N. Y., showed a deficit of $345,508, after allowing for all operating expenses, taxes and income deductions. The deficit is $13,517 less than the deficit for the preceding year. The total revenue from all sources for the year ended June 30, 1925, was $58,711,191, an increase of $534,654 compared with the twelve-month period ended June 30, 1924. This increase was more than offset by higher taxes and larger income deductions. The income deductions were largely due to the increase in Manhattan elevated rental as provided by the readjustment plan of 1922.

Abandonment Petition Withheld.—The Public Service Commission recently denied an application by the Kingston Consolidated Railroad, Kingston, N. Y., in which it sought approval of the declaration of abandonment of its lines known as the Colonial division. The order denying approval, provides that if within 60 days the company files an amended declaration of abandonment and provides operation of a certain part of the Colonial division as required by the commission in the interest of public safety, the amended declaration is approved. The approval is also contingent upon the establishment of bus service, which will in part supersede the service so rendered by the Colonial division and which will also give new service to the northwestern section in the vicinity of Albany Avenue and Foxhall Avenue. It appeared in the evidence on the company's petition that operation of the Colonial division has been at a loss and that operation on the entire line of the Kingston company has not provided an adequate return.

New Eastern Massachusetts Director.—At a meeting of the directors of the Eastern Massachusetts Street Railway, Boston, Mass., held recently, L. Sherman Adams was elected a director to fill a vacancy.

Submission Date of Valuation Report Uncertain.—The date on which the valuation estimate of the Kansas City Railways, Kansas City, Mo., will be ready for presentation to Judge Kimbrough Stone is uncertain, according to a report in which O. V. Jensen is quoted as saying he could not substantiate a recent report to the effect that the valuation estimate would be ready on Sept. 1. Mr. Jensen is assistant to Henry E. Riggs, head of the department of engineering of the University of Michigan, who is preparing the report. The valuation work has been in progress for several months. Judge Stone, referee, ordered the report to be made, presumably in connection with the plans for the reorganization of the railway. Mr. Riggs was expected to arrive in Kansas City on Aug. 4.

Authorizes Branch Line Abandonments. — Abandonment of the East Burlington to Mount Holly branch of the Burlington County Transit Company, Hainesport, N. J., has been sanctioned by the Board of Public Utility Commissioners. Passenger service over the route, a distance of 7.6 miles, was discontinued in March, 1924.

Studebaker Interests Sell Oklahoma Properties.—Sale of its Oklahoma properties was authorized by the directors of the Missouri Power & Light Company, Mexico, Mo., at their last meeting. It is expected that approximately $4,615,000 will be realized from the sale. The plant at Waurika, Okla., is to be sold to the Southwest Utility Company and the properties at Durant and Ardmore to the Oklahoma Gas & Electric Company. The Missouri Power & Light Company is one of the Studebaker group of public utilities, of which the Illinois Power & Light Corporation, Iowa Power & Light Company and Kansas Public Service Company are others.

Cincinnati Syndicate Purchases Stock.—Stock of the Ohio Traction Company, Cincinati, Ohio, held by Philadelphia interests, identified with the original syndicate that formed the company, has been purchased in block by a Cincinnati syndicate, which includes a number of prominent Cincinnatians. It is managed by the Weil, Roth & Irving Company, Cincinnati. This purchase gives to Cincinnatians complete control of the company, as most of the stock is now held in Cincinnati. It serves to eliminate the Philadelphia interests from all connection with the company. Those interests include Randall Morgan and the heirs of the so-called Widener-Elkins syndicate.

Book Reviews

The Public and Its Utilities

By William G. Raymond, professor of engineering and dean of the College of Applied Science in the State University of Iowa. John Wiley & Sons, New York. 346 pages. $3.50 net.

Mr. Raymond does not discuss the history or the present status of public utility regulation. Rather does he attempt to set forth fundamental ideas which in his opinion should govern in the adjustment of all questions of public interest arising in connection with the creation and operation of public utilities, whether owned by the public or by private individuals or corporations.

Mr. Raymond makes no profession that the treatment is exhaustive or all-inclusive. He has merely aimed at an elementary discussion of the fundamentals of the great problems of the relations between the public and its utilities. It is true that the book is the outgrowth of the author's work in his classes, but the material has been so expanded that the completed work is suited to the needs of any person, student of engineering or economics, councilman or other state official having to do with the operation or regulation of utility properties whether owned by the public or by private interests, or by attorneys having to draw franchises or concerned with the settlement of disputed questions. In short, it is a study of one branch of applied economics.

In his discussion in reference to the free play of private business as contrasted with the restricted activity of quasi-public business under state regulation the author subscribes to the idea that regulation should provide an incentive for efficiency, an incentive which must be in the form of permitted relatively high rates of return as a reward for low rates for service or demonstrated high character of service.

Particularly interesting to electric railway men are the chapters on the franchise, public control, rates, value and depreciation. "The Public and Its Utilities" is a book wide in its appeal to utility managers everywhere and to men and women all along the line who are engaged in public utility work and are impelled by a desire for a better and a wider knowledge of the problems of their own companies and of the economic, social and political forces that are constantly at play upon them.

Mechanical Design of Overhead Electrical Transmission Lines

By Edgar T. Painton, 274 pages. Illustrated. D. Van Nostrand Company, New York. Net $6.

Design of overhead transmission lines and supports for them are included in this volume. Treatment is both mathematical and descriptive. A number of charts and short-cut methods are included. The book is British, although references to American practice are made.

Personal Items

G. S. Wills Leaves Wheeling

Made General Superintendent of Steubenville, East Liverpool & Beaver Valley Traction Company

G. S. Wills has resigned as general manager of the Wheeling Traction Company, Wheeling, W. Va., effective Sept. 15, to become general superintendent of the Steubenville, East Liverpool & Beaver Valley Traction Company, East Liverpool, Ohio. C. A. Smith, general manager and part owner of the railway, has been actively supervising operations at East Liverpool, but will hereafter devote most of his time to other interests and intrust actual operation to Mr. Wills.

At the time Mr. Wills became general manager at Wheeling the company was not the most popular of Wheeling's commercial enterprises. Today, however, the company stands high in public favor, and no small credit for the change in public relations belongs to Mr. Wills. During his administration 23 new cars have been added, a new carhouse has been constructed at Warwood, the lines have been extended and improved, the Panhandle schedule has been stepped up by fifteen minutes and south side car service has been rerouted. Mr. Wills is an advocate of advertising. It is his opinion that the advertising campaigns at Wheeling have improved relations between the company and public in all communities served. Mr. Wills has also stressed the value of safety first work, to which he devoted considerable time.

Two Roads About Same Size

The system of which he has been named superintendent has approximately 99 miles of track in Ohio, Pennsylvania and West Virginia. In addition to the lines connecting Steubenville, East Liverpool and Beaver he will have charge of lines running into Chester, two city lines in Steubenville and three at East Liverpool. The system is comparable in size to that of the Wheeling Traction Company.

Mr. Wills has been in the employ of the West Penn Company, by which the Wheeling Company is controlled, for thirteen years past. He went to Wheeling in the fall of 1920 as assistant to C. P. Billings, vice-president and general manager, and on Jan. 1, 1922, was appointed general manager to fill the vacancy caused by the transfer of Mr. Billings to Pittsburgh. He was born in Norfolk, Va., in 1884. Mr. Wills had barely reached his majority when he secured employment under General Manager Derrick of the Oneonta & Mohawk Valley Railway, Oneonta, N. Y., with which he remained from 1905 to 1906, when he secured a place as an apprentice in electrical engineering with the General Electric Company at Schenectady, N. Y.

Leaving this employment in 1907, Mr. Wills went with the Metropolitan Street Railway, New York City, as general carhouse electrician. He later attended Pratt Institute of Science and Technology in Brooklyn, N. Y., and was graduated from a two-year course in applied electricity.

Mr. Wills then went West. He spent two and one-half years in the copper mining districts of Arizona, but the railway business attracted him again and he returned East and entered the transportation department of the Citizens' Traction Company at Oil City, Pa. In six months he was made superintendent of the Franklin Division. In

G. S. Wills

1916 he became connected with the West Penn interests at Pittsburgh, first with the general sales manager as light salesman, then as power salesman, and finally as assistant to the vice-president in charge of the commercial department.

No successor has been named to Mr. Wills at Wheeling, but it is understood that the place he leaves vacant will be filled by promotion from the ranks.

M. A. Hanlen has been promoted from the position of foreman at the Kossuth car station of the United Railways, St. Louis, Mo., to the office of superintendent of the second division. Mr. Hanlen succeeds John H. Turner, who died early in May.

Joshua Kidd Bruce, traffic manager for fifteen years, recommended for general manager of the London County Council Tramway at a salary of £2,000 a year, has been approved for appointment to that office. Since the retirement last year of A. L. C. Fell, Mr. Bruce has acted as general manager. Mr. Bruce has initiated several improvements to the system which have effected considerable savings. The general purposes committee, which made the recommendation, added that for the past six months Mr. Bruce has been very successful in operating the tramways.

Tracy Lynn was recently appointed operating assistant to D. W. Snyder, Jr., vice-president Illinois Traction System with headquarters at Springfield.

A. W. McLimont, vice-president and general manager of the Winnipeg Electric Company, successor to the Winnipeg Street Railway and Manitoba Power Company, Winnipeg, Man., is one of the directors of the Power Corporation of Canada, which has just purchased the interests of the Sir William MacKenzie estate in the Winnipeg Electric Company. The Power Corporation is primarily interested in acquisition and development of hydro-electric and public utility companies. In addition to Mr. McLimont, the board of directors includes: J. B. Woodyatt, Montreal; N. A. Timmins, Montreal; P. A. Thomson, Montreal; A. J. Nesbitt, Montreal; J. M. Robertson, director of the Southern Canada Power Company; Col. J. R. Moodie, Hamilton, and K. S. Barnes, Montreal, secretary. Mr. McLimont's election to the board is regarded in Canadian financial circles as an indication of the regard his successful work as a public utility operator has won for him. Mr. McLimont is well known in the United States. His utility experience covers the successful operation of several properties in the States and others abroad, notably in South America.

Edward Davis, pioneer member of the railway forces of the Monongahela West Penn Public Service Company, Fairmont, W. Va., has assumed the duties of acting general superintendent of the railway department with headquarters in Fairmont. He succeeds Jacob O. Beals, resigned. With 21 years of continuous service with the company, Mr. Davis is a member of the veterans' organization. On Sept. 3, 1901, he entered the service of the company as a conductor. Later, when the interurban lines were built out of Fairmont, he was promoted to dispatcher and later was sent to Clarksburg as chief dispatcher and from that point he has been handling the interurban lines of the Fairmont & Clarksburg division.

L. R. Brown, office and field engineer of the New York State Railways, Rochester, N. Y., is now editor of *Transportation News,* the official publication of the company. In this work he succeeds A. W. Koehler, who recently left Rochester for Milwaukee to accept a position as superintendent of accident prevention of the Milwaukee Electric Railway & Light Company.

Benjamin S. Hanchett, previous to 1920 for many years president of the Grand Rapids Railway, Grand Rapids, Mich., has been elected a director of the Gray Motors Corporation, Detroit, which will manufacture, among other vehicles, the Tillings-Stevens bus.

Obituary

William Kidder, at one time president of the Terre Haute Street Railway & Electric Lighting Company, is dead.

Thomas Vail, at one time president of railway companies operating lines connecting Troy and Cohoes, Rensselaer, Saratoga Springs and Bennington, died recently at his summer home at Old Bennington, Vt. At the time of his death he was president of the National City Bank of Troy.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions
A Department Open to Railways and Manufacturers
for Discussion of Manufacturing and Sales Matters

Babbitt Metal Consumption in June

The Department of Commerce announces total apparent consumption of babbitt metal, based on reports received from 27 firms, as 5,034,965 lb. in June, as compared with 5,081,667 in May. This consumption is calculated from sales by manufacturers and consumption by those firms (among them several important railroad systems) which consume their own production. The sales of babbitt metal are shown separately from the consumption in the producing plants. The table follows:

1925	Total Apparent Consumption, Pounds	Sales by Manufacturers, Pounds	Consumption by Producers, Pounds
Jan.	5,683,182	4,620,814	1,062,368
Feb.	5,164,619	4,103,340	1,061,279
Mar.	5,644,288	4,395,901	1,248,387
April	5,126,415	3,928,135	1,198,280
May	5,081,667	4,189,557	892,110
June	5,034,965	4,085,124	949,841
*Total	31,735,136	25,322,871	6,412,265

*Totals for six months.

Canadian Electrification Completed

Electrification of the main line of the Canadian National Railways between Lazard and St. Eustache was completed on June 29. This gives the company a direct electric line from the Tunnel Terminal to St. Eustache and permits the removal from service of the storage-battery car which has been operating between Montreal and St. Eustache.

In place of the storage battery car the Canadian National Railways will put into operation on this line two of the new multiple-unit electric cars which are much superior to any electric equipment now in service on that part of the line. The new cars, which were constructed in the Point St. Charles shops of the company, have an over-all length of 80 ft. and accommodate 88 passengers, of whom 72 can be seated in the main body of the car and the remainder in the smoking compartment. The main body has seats upholstered in plush, and those in the smoking compartment are upholstered in leather.

Fisher Will Make Bus Bodies

The Fisher Body Corporation will enter the bus body manufacturing field with the acquisition of the plant formerly occupied by the Buick Motor Car Company, covering 40 acres and 500,000 sq.ft. of floor space, located at Michigan and Western Avenues, Detroit. The property will be converted into the largest bus body manufacturing plant in the world.

The Fisher Body Corporation seems assured quantity production as a result of orders already received from the Yellow Truck & Coach Company. The General Motors Corporation, through ownership of a majority of the stock, controls the Yellow Truck & Coach Company and the Fisher Body Corporation. A close working agreement exists between the two companies and General Motors.

Heretofore the Fisher Body Corporation has devoted its efforts to perfecting bodies for motor cars and trucks, but it is stated that the company for some time past has been considering entering the field of bus body manufacture.

Industrial Paper Advertising Eligible for Award

The committee in charge of the Harvard advertising awards, founded in 1923 by Edward W. Bok, has issued a statement calling to the attention of industrial advertisers and those using business and trade papers that advertisements or advertising campaigns appearing in the business press are eligible for consideration under the terms of the awards for 1925.

While no special awards have been provided for industrial or trade advertising as contrasted with consumer advertising, the industrial advertisements and campaigns are eligible to compete under the classification of awards as set up. This provides three awards of $2,000 each for campaigns and research and three $1,000 awards for meritorious individual advertisements. According to the committee, the jury will be instructed to consider campaigns and advertisements with especial attention upon the problem which the advertiser faces and the skill and ingenuity with which the advertiser has met his problem. For the current year advertising published during the period from Oct. 1, 1924, to Jan. 1, 1926, is eligible for consideration. Submittal to the Harvard business school, however, must be made by Dec. 31, 1925.

New Studebaker Chassis Being Delivered

First deliveries of the new Studebaker bus chassis are being made this week. By the end of the month it is expected that a hundred will be in actual operation. Deliveries are about evenly divided between the 158-in. and the 184-in. chassis.

Bus No. 1 on the new bus chassis made its appearance at the South Bend factory on July 9. It will probably be kept by the corporation, to be added to the Studebaker museum of transportation. It is of eighteen-passenger capacity, mounted on the 184-in. Studebaker bus chassis, which has the 75-hp. Big Six unit power plant and 7.3 balloon tires, mounted on steel disk wheels.

Studebaker says it has built its new bus chassis "from the experience gained from over a thousand buses which had been fitted to the Big Six passenger chassis." Arrangements have been made with leading bus body builders to supply bodies as required by individual operators.

Consumption of Copper Unprecedented

Advancing prices of copper reflect the unprecedented consumption of the metal, as measured by shipments, and the consequent reduction of stocks in the second quarter of the year. According to the Guaranty Trust Company, New York, shipments totaled 368,324 short tons, as compared with 341,808 tons in the first quarter. The greater part of the gain was in foreign shipments, which were the largest for any quarter since the war. Production was 9,560 tons larger than in the first quarter. Total stocks of copper above ground in North and South America on July 1 were 339,612 tons, or 43,202 tons less than on April 1 and the lowest figure reported in more than two years. From an average of 13.5 cents a pound in May, the price of electrolytic copper in New York has advanced nearly to 14.5 cents. Quotations on copper products also have risen, as have those for lead, zinc and tin. Stocks of the refined metal are the lowest since the war.

Illinois Central Awards Electrical Contract

A contract has been awarded by the Illinois Central Railroad to the Pierce Electric Company, Chicago, for the installation of contact and feeder wire for the entire suburban electrification project in the Chicago terminal area.

Foundations and steel transmission tower structures are being erected by the railway company forces. This work is now well under way and the active work of putting up wire will be started immediately by the contractor. The electrical work is to be completed by July 1, 1926.

Metal, Coal and Material Prices

Metals—New York	Aug. 4, 1925
Copper, electrolytic, cents per lb.	14.625
Copper wire base, cents per lb.	16.00
Lead, cents per lb.	8.80
Zinc, cents per lb.	7.90
Tin, Straits, cents per lb.	59.375
Bituminous Coal f.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	$4.425
Somerset mine run, Boston, net tons	1.875
Pittsburgh mine run, Pittsburgh, net tons.	1.95
Franklin, Ill., screenings, Chicago, net tons	2.00
Central, Ill., screenings, Chicago, net tons	1.70
Kansas screenings, Kansas City, net tons.	2.50
Materials	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	$6.90
Weatherproof wire base, N.Y., cents per lb.	18.50
Cement, Chicago net prices, without bags.	2.20
Linseed oil (5-bbl. lots), N.Y., per gal.	$1.07
White lead in oil (100-lb. keg), N.Y., cents per lb.	0.1575
Turpentine (bbl. lots), N. Y., per gal.	1.00

Rolling Stock

Interstate Public Service Company, Indianapolis, Ind., has placed an order with the American Car & Foundry Company for six heavy ballast cars.

Market Street Railway, San Francisco, Cal., has decided to add a number of new cars to its equipment. Four have recently been built. It is planned to add at least one new car each fortnight, until the company's officials think the equipment is sufficient to take care of the growing traffic. The cars will be built in the company's shops in San Francisco.

New York, Westchester & Boston Railroad, New York, N. Y., is in the market for 26 buses to be delivered early this fall for service in Westchester County and used in co-ordination with the road's electric service between White Plains and New York. Contracts may be divided among two or three manufacturers and will be followed by orders for further passenger motor equipment. Buses are to be of passenger city type to accommodate 29 passengers each.

Track and Line

Indianapolis Street Railway, Indianapolis, Ind., is carrying out a $500,000 reconstruction and improvement program. The work involves the laying of more than 7 miles of new track, installation of more than 15 miles of new trolley wire, installation of expensive switches at corners where traffic is unusually heavy and various other improvements. New track already laid or in course of construction includes about 32,100 ft. In addition the company will install 3,000 ft. of new track on the Oliver Street bridge over White River as soon as it is completed and 4,000 ft. on the Kentucky Avenue bridge. New curves are now in course of construction on the Pennsylvania Street line at Sixteenth Street. An expensive item has been the making of 4,000 thermit-welded joints between the rails. Renewal of a number of frogs and switches is a big item in the program, the cost being not far from $40,000 in each instance. About $50,000 was expended in similar work at the West Washington Street carhouse, resulting in an increase in car-storage capacity from about 200 cars to about 280. Fully 15 miles of new trolley wire was installed on the system at a cost of about $1 a foot.

Boston, Mass.—The first section of the extension of the Dorchester tunnel on the Boston Elevated system is nearly completed and the Boston Transit Commission is planning the second section, which will be 1¾ miles in length. The bids for the second section will be opened on Aug. 27. This is the section that will use a part of the roadbed of the Shawmut branch of the New York, New Haven & Hartford Railroad.

Stockton Electric Railroad, Stockton, Cal., has been authorized to operate cars over an extension to be constructed from the end of the Tuxedo Park car line to the College of the Pacific. The State Railroad Commission authorized the city to grant the franchise. The extension will serve a rapidly growing residential district. It will be 2,815 ft. in length and will cost approximately $36,000.

Oregon Electric Railway, Portland, Ore., is being urged to extend the line from Eugene to Springfield by residents of the district to be served.

Washington-Virginia Railway, Alexandria, Va., will improve the space between its tracks and 2 ft. on each side on six squares on Cameron Street between Columbus and West Streets. This is in accordance with a resolution recently adopted by the City Council which provides that the work be started within 30 days from the passage of the resolution. The proposed work will be of a temporary nature and will cost the company approximately $5,500.

Power Houses, Shops and Buildings

Springfield Bus Terminal Company, Springfield, Mass., formed by men identified with the Hartford & Springfield Street Railway, will soon commence the erection of a new bus terminal building at Worthington Street and Broadway in Springfield. The plan is to replace an old shed with a one-story waiting room and garage and to remodel the building now used for a waiting room and open a restaurant therein. Eventually a building several stories high will be built to include offices. Plans for the one-story brick building are being prepared by Henry J. Tessier, Springfield. The site for the terminal was deeded to the new company on July 29 by the Springfield Breweries Company, from which the Hartford & Springfield company leased the property last year for its bus service.

Milwaukee Electric Railway & Light Company, Milwaukee, Wis., plans to remodel its old Kinnickinnic Avenue carhouse in preparation for its use as a garage. The work will cost $6,000.

Trade Notes

Bridgeport Brass Company, Bridgeport, Conn., will distribute free for the A.E.R.A. convention a neat little brass tack pin, to those associations whose members use products similar to the brass goods made in the Bridgeport Brass Company's factory. To others, owing to the persistent demand for these little emblems, a nominal charge to cover costs has been found necessary.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., announces that T. D. Lynch, manager material and process engineering department, was elected a member of the board of directors of the American Society for Testing Materials at the recent annual convention of the society. This is the second similar honor given to Mr. Lynch by engineering bodies, he having been president of the American Society for Steel Treating in 1922-23. He has been with the Westinghouse company since 1899.

Gibb Welding Machines Company, Bay City, Mich. (successor to Gibb Instrument Company), manufacturer of electric welding equipment, announces the appointment of Arthur Jackson, 32 Glenholme Avenue, Toronto, Ont., as sales representative for Ontario and eastern Canada. The Gibb Welding Machines Company's line comprises arc, spot and seam welders.

North East Electric Company of Canada, Ltd., Toronto, Canada, on July 1 began the manufacture of North East starters, generators and ignition. It will supply electrical equipment to car manufacturers of Canada who are using North East equipment as standard. This new company occupies the entire building at 17 Elm Street, Toronto, which formerly housed the Canadian branch of North East Service, Inc., and will in addition to the manufacture of equipment also take over the service work in Canada formerly handled by the Toronto branch of North East Service, Inc. J. W. Neun, who is in charge of the operation of the North East Electric Company of Canada, Ltd., was formerly manager of the Toronto branch.

Roller-Smith Company, New York, N. Y., maker of electrical instruments and circuit breakers, announces the appointment of the Tennessee Engineering & Sales Company, 510 Burwell Building, Knoxville, Tenn., as its agent in that part of Tennessee and Kentucky within a working radius of the city of Knoxville. The personnel of the Tennessee Engineering & Sales Company is as follows: J. C. Buchanan, Bliss Electrical School, 1924. Mr. Buchanan has been connected with the Knoxville Power & Light Company in its meter department since being graduated. W. L. Tadlock, Carnegie Institute of Technology, 1924. Mr. Tadlock has been connected with the General Electric Company, Ballston Lake, since being graduated. S. E. Adcock, who has been connected with C. M. McClung & Company and the Acme Electric Company of Knoxville for several years.

New Advertising Literature

American Electric Fusion Corporation, Chicago, Ill., has published the first issue of the "A. E. F. Welding Illustrated." The paper will be published monthly. The company states that it is trying to adopt a broad gage policy toward the art of electric welding, regardless of whose equipment is involved. Its present issue and future issues will be mailed regularly to any one who sends his name.

Detroit Stoker Company, Detroit, Mich., describes Detroit underfeed stokers of the single-retort type in a new and attractive 32-page bulletin just off the press. Among other items of outstanding interest to combustion engineers, the bulletin contains a number of fuel bed cross-sections showing conditions of the fire with respect to air distribution and movement toward the dumps. Copies of this bulletin, No. 1018, are available upon application to the company at the General Motors Building, Detroit.